



Remaining Relevant in Your Tech Career

When Change
Is the Only Constant

—
Robert Stackowiak

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*This book is dedicated to my wife, Jodie,
my life-long partner. Without her, my career
journey and this book would not have been possible.*

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About the Author

At the time this book is being written, **Robert Stackowiak** is the Technology Business Strategist at the Microsoft Technology Center in Chicago. In addition, he advises clients on data and artificial intelligence architecture. You can find out more about his career in the introduction to this book.

Over the years, he has co-authored many books, including *Architecting the Industrial Internet* (Packt, 2017), *Big Data and the Internet of Things: Enterprise Information Architecture for a New Age* (Apress, 2015), *Oracle Essentials: Oracle Database 12c* (O'Reilly, 5th Edition, 2013), *The Oracle Big Data Handbook* (Oracle Press, 2013), *Achieving Extreme Performance with Oracle Exadata* (Oracle Press, 2011), *Oracle Data Warehousing and Business Intelligence Solutions* (Wiley, 2007), *Professional Oracle Programming* (WROX, 2005), and *Oracle Application Server 10g* (O'Reilly, 2004).

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Acknowledgments

I begin my acknowledgments by first recognizing my co-workers and clients. I have learned much from them over the years as they asked me insightful questions and provided their points of view. I owe much of my skills development over the years to them.

My management has always been supportive of and recognized the value in my authorship of articles, whitepapers, and books. That is certainly true at Microsoft. I would like to thank my teammates for their collaboration in the Chicago Microsoft Technology Center as this book was being written. Charles Drayton, Paul Edlund, Bob Gabriel, Matthew Housholder, and Ross LoForte are all masters of change in their own ways. I also received support and encouragement from Microsoft management, especially from Beth Malloy, the Director of the Chicago Microsoft Technology Center, a person whom I greatly respect and who is on a journey similar to my own.

Over the years, I have always been fortunate to have management that assisted in my own personal growth. Through their encouragement, I became more technically skilled but also became a better writer, grew to greatly enjoy public speaking, and learned how to strategically and tactically address problems and figure out appropriate solutions.

The professional network that I established has been extremely helpful whenever I pursued new opportunities. In the days before LinkedIn, networking was largely through word-of-mouth. But, I find LinkedIn extremely useful these days in maintaining and growing relationships. I encourage my readers to connect to me on LinkedIn and provide feedback.

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I am thankful that the folks at Apress immediately saw the value that this book could provide to the technology community. As this book became a reality, Jonathan Gennick provided editorial direction and support of this project, and Jill Balzano served as coordinating editor. Laura Berendson was our Development Editor for this book. All have been extremely helpful in the production of this book, as I might have expected since Jonathan and Jill helped me produce other books that I authored in the past. They always make this process relatively easy.

Finally, writing a book is usually reserved for weekends and during my commute by train into Chicago. My wife Jodie has been supportive of my career as it has taken twists and turns throughout the years and has also supported my writing efforts. While it has not always been clear to her exactly what I did for a living, she has encouraged me and celebrated with me when recognition was forthcoming. She has been at my side throughout, taking a lead role in raising my two fine sons, Nick and Mike. My success is in no small part due to her.

I have much to be thankful for.

Introduction

I have had the good fortune to work for about 40 years in technology-related roles. You might have picked up this book because you wonder how this is possible. I was reminded of attitudes that some possess about aging in such roles recently while riding my commuter train from work in the Chicago area. I overheard a conversation where one of the technology specialists said to his friend, "When you reach the age of 50, you should not be in information technology." Since I am well beyond the age of 50, it occurred to me that the position that I hold and the value that I still provide might be unexpected by some. Yet, I know there are many of you who continue to believe that you can make a positive impact in technology careers and that you have valuable experience that you can bring to new jobs as you age.

A part of my longevity is due to my belief that the most fun in this type of a career comes from leading change and not waiting for others to drive it. I learned a lot of lessons, both positive and negative, along the way. I periodically teach undergraduate and graduate students pursuing similar careers (at the University of Dayton, York University in Toronto, and elsewhere). They frequently ask me for advice as they embark on and navigate their own careers. So, I figured it was time to record some of that advice in the form of a book. You'll see that the book is laid out in chapters to provide you with guidance in areas that include:

- What companies and organizations want
- The importance of business culture
- Political considerations

INTRODUCTION

- Why diversity matters
- Developing the right skills
- How to own your future

I realize that some of you might believe that the rate of change in the future will accelerate and that lessons from the past might be of limited usefulness. However, rapid change is nothing new (as you are about to see as I describe my career path here). I believe that many of the lessons that I share in this book will therefore prove useful in the future.

My Career Path

I encountered a lot of changes in technology and what was expected of me over the years. My career path included jobs in the government and in commercial technology companies. I advised government agencies and small, medium-sized, large, and multi-national commercial companies in these roles, helping them define strategies and information technology architectures.

My undergraduate degree is in civil engineering and was obtained from the University of Notre Dame. In the 1970s, the computational tools that civil engineers used evolved from slide rules to electronic calculators and computers. Input into computers was most often by using punched cards. The engineering programming language of choice was Fortran. The experience with computing that I gained at Notre Dame started me in a direction I hadn't anticipated.

Upon graduation, I was hired by the U.S. Army Corps of Engineers to focus on hydraulic (water-related project) engineering. Being the young member of the team, they assigned me to projects that included technologies still in the process of being proven as useful. Survey data in the Chicago District was analyzed using software, and both software and

data were loaded into a programmable calculator via magnetic cards. At the St. Paul District, I used Fortran-based software developed by the Corps' Hydraulic Engineering Center (in Davis, California) to analyze river flow and flooding and predict the impact of flood control projects. I was also trained on how to use finite element software for structural analysis and design.

The Corps was ahead of its time in many respects when I worked there from 1978 to 1986. They were early adopters of minicomputers (from Harris Corporation). Programming and input was possible through Texas Instruments terminals (with thermal paper to display input and output), Tektronix graphics displays, and later through CRT terminals and PCs. Lock and dam traffic data was captured on CPM-based PCs that were loaded with 8-inch floppy disks.

It was during this time that I made the transition from being a hydraulic engineer using computers to programming software to make my job easier. Later, I began writing code to provide software solutions for others. In 1982, I developed Habitat Evaluation Procedures (HEP) software in Fortran for the Harris computer under guidance from the Corps' headquarters in Washington, D.C. This software was used to report on the potential impact of projects on wildlife habitats.

About this time, the St. Paul District began exploring the value of AT&T 3B2 Unix-based computers and the C programming language. I attended training at AT&T in Santa Clara, California. Upon my return, we used the AT&T 3B2s that we had in St. Paul to set up networked e-mail among the engineers. I rewrote the HEP software in C. I also developed training and documentation for the engineers using these platforms and collaborated in development of critical path method (CPM) software for managing construction projects.

INTRODUCTION

During my time at the Corps, I also began developing applications using database software, including Info (a hierarchical database) and very early versions of Oracle. Prior to departing the Corps of Engineers, I had become the Chief of Programming in St. Paul and managed a team of engineering (Fortran) programmers and business (COBOL) programmers.

I was determined to move into the commercial sector at that point in my career and saw my experience using Harris minicomputers as providing a bridge. I joined Harris Computer Systems in 1986 as a Sales Engineer. There, I was exposed to the world of real-time simulation software used by major aviation manufacturers. I also learned another language, Ada, that was believed to be the next generation language for all government projects. Harris was transitioning from proprietary operating systems to Unix at this point, and all e-mail communications used the Internet. It was during this time that I began to develop my sales skills and received my first public speaking training.

By 1989, the minicomputer marketplace was quite crowded with vendors, and Harris was not making much headway to establish itself in the commercial market space. However, my Unix and technical sales experience came in handy as IBM was looking for talent to launch the RISC System/6000 (now known as their p-Series). IBM initially targeted this Unix-based platform as an engineering workstation to avoid internal competition with the more lucrative AS/400 and mainframes.

Upon being hired at IBM, I was put in charge of the Chicago area launch of the product and promptly lined up various database and other commercial software vendors as partners to display their wares. This was an exciting time, as the notion of open source was just starting to take hold. Many long-time IBMers felt it risky to be connected to the platform, so the division initially behaved like a start-up. However, when the platform quickly reached sales of over a billion dollars per year, being part of the effort suddenly became more attractive to long-time IBMers, and some of the early flexibility began to disappear.

Several software and hardware innovations were linked to the RISC System/6000 at the time. An early version of the Mosaic browser (a predecessor of Netscape) was developed on the platform at the University of Illinois. We began demonstrating Mosaic by accessing some of the very early websites. We were also able to demonstrate a prototype of Steve Jobs' NeXTSTEP interface on the platform at tradeshows. The POWER processor was miniaturized into the PowerPC CPU, and I attended Apple's announcement of its adoption with IBM at a Unix Expo conference in New York.

As the RISC System/6000 became mainstream, I assumed a national role as part of team launching a massively parallel processing platform, the IBM SP2 (later known as the RISC System/6000 SP). The platform was mostly used for data warehousing. I became a liaison to the major database companies at the time (Informix, Oracle, RedBrick, and Sybase) as well as an array of business intelligence and analytics tools companies. I also became one of the go-to people within IBM for large-scale data warehousing briefings in Poughkeepsie, New York and at customer locations.

Though the relational database market was still developing and rapidly growing in 1996, it was clear to me that Oracle was well-situated to become the leader in that market. I was hired by Oracle to be a Sales Consultant in the Chicago area but quickly expanded my responsibilities into a regional data warehousing role and then into a North America-wide data warehouse specialist role.

My platform launch background proved useful when I helped guide the launches of Oracle's engineered systems into North America. Platforms I helped launch included Exadata, Exalytics, and the Big Data Appliance. I visited leading North American companies and became a frequent speaker at Oracle's Redwood Shores, California Customer Visit Center, OpenWorld, and industry events.

INTRODUCTION

During my time at Oracle, I was also called upon frequently to lead training of Oracle's field sales and technical resources. Though I had written magazine articles while at IBM to help establish my credibility with technical audiences there, I always believed that books carried more validation. So, in 1999, I became a book co-author for the first time and continue to write books (including this one) to this day.

When the concept of cloud computing began to be adopted early in this century, sophisticated provisioning and advanced management software provided differentiation versus earlier hosted systems. Within the past decade, these advancements have made cloud-based solutions more practical for rapid deployment of solutions and the building of prototypes. As early market leadership is especially important in major technology platform shifts and there are usually only three or four major players when the dust settles, I found Microsoft to be well-situated for taking advantage of this market and moved there in 2016.

My role at Microsoft changed during my time there. I found my ideal spot to be in Chicago's Microsoft Technology Center helping advise companies and organizations on business trends (aligned with Microsoft's digital transformation messaging) and architecting solutions. The role builds upon my previous experience, and I also have an opportunity to share my discovery and briefing techniques with other architects. I frequently work closely with Microsoft's partners who are building innovative solutions in areas such as artificial intelligence and who are devising solutions for the Internet of Things (IoT).

Figure I-1 represents some of the technology highlights encountered during my career. They are mapped along a timeline that represents when I encountered them.

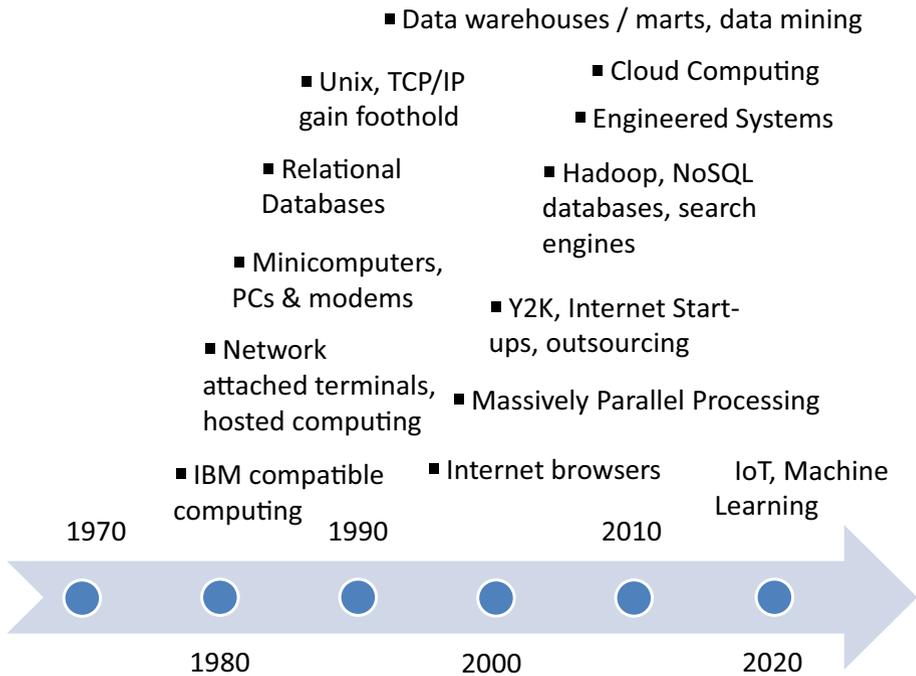


Figure I-1. *Technology encountered in my career*

I think you will agree that I have taken part in a lot of technology change during those 40 years. As you probably gathered from my track record, I don't run from change—rather I seek it and help organizations navigate it, often during early adoption of new concepts and products. These roles have not paid me 7-figure salaries in any working year. Being compensated at that level was never my primary goal. Nevertheless, my compensation and job satisfaction during my career has always been quite good.

Navigating this sort of career required knowledge of changing technologies, evolving industry business needs and trends, and knowing how to find the right companies to work for at the right times. One of my primary goals was to build experience that would continue to be in demand. It is my hope that by sharing my observations and courses of action in this book, you gain helpful advice in how to best navigate your own career.

CHAPTER 1

What Have You Done for Me Lately?

This is a book about how to remain relevant throughout your career in technology. You might have chosen your career path because you like technology and technology-related projects; are especially skilled in science, technology, engineering or math (popularly referred to as STEM); and/or observed the many job openings with relatively high salaries that are almost always available to people with these skills.

Obtaining a STEM-related degree at a university requires a lot of work. You likely spent long hours in libraries and on projects in anticipation of a big payoff when you graduated (while some of your roommates in non-technical courses of study at the same institution were spending significantly more time in social activities). But when you began your first job after you obtained your degree, you probably began to realize that your learning had just begun.

You might be taken aback at first by the title of this chapter if you believe that you are a “rock star” in your present company or organization. You could believe that since you’ve established a track record of success by taking on difficult tasks and even received some accolades, you’ve “made it.” But you will likely find that using these same skills in the future to solve similar problems will not be possible. I have seen some people slow their learning once they found a niche and built a reputation, believing that their past success will guarantee future employment.

There are several reasons why slowed learning becomes a problem. Your current awesome technical skills might become irrelevant as technology changes. The needs of the business will likely also change over time. If you do not anticipate such changes or show a willingness to adapt, you run the risk of being left behind or seen as non-essential to the business.

If you read the introduction to this book, you observed that my career had many twists and turns. But my career also had a logical progression to it. I used new skills that I developed in certain roles to build value that was applicable to my next job or role.

In this chapter, I'll describe how to stay out in front of changes in technology and business by:

- Tracking trending technologies
- Understanding business threats and opportunities
- Applying technology to opportunity
- Aligning a career development plan

Some of these topics might not sound like what you signed up for when you first pursued a technical degree. I have found them fundamental to establishing relevant value at the organizations and companies that I worked for. They also helped to provide me with an exit strategy from a job or company whenever I believed that I needed one.

Tracking Trending Technologies

I always find it useful to explore emerging technologies and trends. Often, the advancements and changes that I tracked were outside of the scope of interest in the company that I was employed by. I never owned a crystal ball that could tell me the future, but I was able to detect when emerging technologies were gaining momentum. Though technologies sometimes

gained adoption because they were innovative and had a “coolness” factor associated with them, there were also solid business reasons as to why they made sense to adopt at the time.

In commercial businesses, technologies gain adoption when it is believed that they can improve top line growth, reduce bottom line costs, and/or increase margins. In government agencies, technologies gain adoption when they improve management and delivery of services provided by the agency and/or make it possible to share information with constituents and lawmakers who fund the agencies.

For example, during my career, the adoption of data management technologies has followed this familiar pattern. New data management platforms are adopted when previous platforms are viewed as inflexible and not optimal for retrieving data needed to make decisions. Relational databases, Hadoop clusters, and other NoSQL data management solutions were all seen as providing better access to critical information and led to explosive growth in their adoption during my career.

“Open” platforms and solutions grow in popularity when they are viewed as providing a means to overcome vendor lock-in. Legacy solutions often become viewed as proprietary and are associated with escalating licensing and support costs. Ultimately, more popular open solutions usually introduce some form of lock-in to protect a company’s revenue stream, and they, in turn, spawn the introduction of yet more new alternatives.

Many of today’s popular relational databases were initially seen as open alternatives to IBM mainframe solutions. Though these relational databases are typically supported on a variety of platforms today, many are now considered to be proprietary. Hadoop variations and NoSQL database alternatives are viewed as more open, and sometimes development efforts are started on those platforms for that reason (though those vendors also usually have a strategy to help assure it is not too easy to migrate from their platform).

A bigger problem, in many organizations, is the lack of speed within Information Technology (IT) in delivering solutions to business problems. Business applications entered the marketplace to more quickly deliver solutions aligned around key business areas (such as customer relationship management, human resources, business finances, and supply chain management). Many industry specific applications also appeared. Such applications were usually preferred over in-house custom development efforts when they aligned with current business needs, even though customization of the applications became common and introduced its own complexities and time-to-market challenges.

When pursuing custom development, many organizations today look to agile development methodologies. They incorporate service-based strategies to ease the movement of software among platforms by utilizing containers. These approaches promise faster time to delivery of needed solutions in smaller development increments and faster failure leading to ongoing adjustments (rather than slow and monumental failures where adjustments are impractical).

Providers of business intelligence, artificial intelligence, and other such tools have begun to talk about the democratization of their usefulness. The goal is to speed development and time to solution by putting the power of these tools into the hands of business analysts and users and break the IT log jams present in many companies.

The adoption of public cloud-based deployment solutions is also driven by the need to respond to changing business conditions by enabling delivery of solutions faster. Organizations can no longer wait 6 months while their IT organization procures and configures platforms. They can simply request resources from their favorite cloud provider, rapidly succeed or fail (turning off cloud resources if the project fails), and scale up or scale down the resources as needed. Increasingly seen as a benefit is the robust security many of these environments can provide, far beyond the capabilities of most IT organizations.

The movement to the cloud is reflected in analysts' reports showing a decline in spending growth within IT. This is also causing a change in the mix of IT jobs in demand. Many traditional IT jobs are not seen as core to growth or profitability of the business but are instead seen as costs that should be contained.

When Infrastructure as a Service cloud-based solutions are deployed, the need to design, build, and maintain data centers is diminished as cloud vendors manage back-end networking, servers, storage, and virtualization. In Platform as a Service deployment, the vendors additionally manage the operating systems, middleware, and runtime environments, including software installation and patching. Where Software as a Service is deployed, the vendors also manage the applications and data.

Tracking these trends is relatively easy if you work for a leading technology company and particularly if you work in one of the hotbeds of innovation and development (such as Silicon Valley or Seattle). It is likely that your leadership or founder talks about these trends and threats during internal meetings and when they brief the financial community.

Even if you don't live in such an area, it is important for you to have a view of changes in technology that is formed based on information beyond that which is available within your company. Reading independent technology journals and newspapers published in the technology hotbeds can provide you with different perspectives.

A telltale sign of an emerging hot area for technology is the appearance of competing conferences on the new topic. These are usually sponsored by IT analyst firms and industry technology organizations. The growing maturity of an emerging technology becomes apparent when most of the speakers at such conferences are early adopters from the business side of companies and organizations, instead of vendors selling or hyping the technologies. At that point, the growth in job opportunities can explode as other companies try to replicate the solutions.

Business Threats and Opportunities

Many who engage in a technology career enjoy following emerging trends and developing new skills. However, changes in an organization's primary business, sometimes driven by new and emerging external threats, can also impact your career. As many of these changes can require adoption of newer technologies to develop solutions, such business threats can also provide you with new opportunities.

For example, there is a growing trend among businesses and organizations to recognize the value of their data and more fully utilize the data that they have access to. Many are building sophisticated analysis platforms not only to better compete against their traditional competitors but also to enter new markets. Some now provide information as a service in the role of data aggregators.

The Internet of Things has opened new channels for data gathering. Smart devices containing sensors are used in monitoring product usage, traffic flow, environmental conditions, and a host of other activities. The new data sources enable organizations to extend their reach into adjacent business areas that sometimes include preventive maintenance, proactive safety, or security monitoring solutions.

Businesses are always looking for new sources of revenue. If you work for a publicly traded company, your executive team is responsible for providing guidance to investors to assure them that your company is positioning itself to respond to new and emerging threats and opportunities. By continually tracking your company's changes in direction as well as those of competitors, you will be able to more rapidly position yourself to take part in your firm's most important projects.

Most companies progress through a maturity life cycle. It is important to understand where a company is in that life cycle, as it greatly influences the kind of people they want to hire and the initiatives they want to pursue.

Start-up companies begin with a vision held by the founders. They move beyond the start-up phase by gaining early adopters that become paying customers. The business then scales to support growing demand from both new and existing customers.

Financial maturity is reached when the company can regularly and predictably show profits. Companies sometimes lose momentum during this phase and are forced to sell themselves to other companies or go out of business. However, most continue to grow through research and development or through the acquisition of other businesses.

Figure 1-1 illustrates this life cycle.

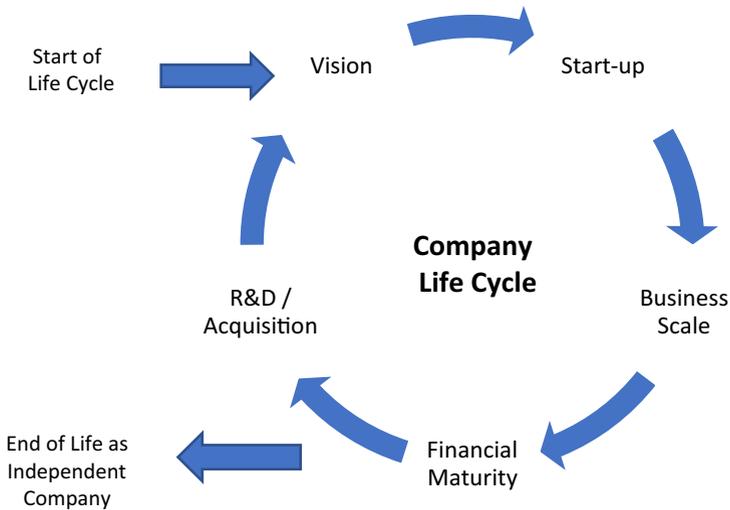


Figure 1-1. *Company life cycle*

Thus, you should allocate some of your reading and research beyond seeking information only from technical journals. You might use the Appendix of this book listing references that were used in the preparation of this book as a starting point for your research. You should also read leading business journals that cover your company, your industry, and your emerging competition. Look for clues of important change occurring that might be driven by developments in any of these places.

Applying Technology to Opportunity

Once you believe that you've discovered compelling business change and the technology that will drive it, what do you do next? How you respond could depend on your role within the company and whether the lines of business come to your organization for solutions.

In some companies, the IT team has largely become associated with maintenance of legacy equipment and applications. Attempts to get business-sponsored projects started through IT might have proven to be difficult and slow in the past. With public cloud-based computing now offering an alternative, the lines of business now sometimes establish their own development teams or hire consultants outside of IT to build solutions.

If you are envisioning a project to prove a business solution theory of your own, you'll need to sell it to business stakeholders and prove that you can deliver the proposed solution. It will be much easier if your organization has predictably delivered needed solutions in the past and if new funding continues to appear.

Today, most projects seen as successful are developed using an agile approach and traverse through a common set of steps. Projects usually begin with a vision of what is possible, including the value that the project might provide to the business. There will probably be many skeptics, so your goal is to prove the potential value as quickly as possible.

In solutions that will rely on data to make decisions, a critical step is to interview potential stakeholders and key business users and analysts. You will need to understand the critical success factors (CSFs) and metrics or key performance indicators (KPIs) they will need to make their business decisions. You must then assess the availability and quality of needed data and the type of analyses to be performed.

During the interviews, you will also begin to understand the value of the potential solution to the organization. Projects are usually undertaken based on their priority, and prioritization will partly be driven by the culture present in the organization. We'll discuss the impact of culture on you career and the role it plays in how projects get prioritized in the next chapter.

If you have the data needed and it proves to be of sufficient quality, you will now be ready to build a small-scale demonstration of what the solution might deliver. This is your opportunity to validate your theory and gain the confidence of potential sponsors. You must succeed or fail quickly. If you fail in your initial attempts, you will nevertheless learn from those failures. One indication as to whether you are working at a company that promotes innovation is the tolerance for such failures and celebration of successes.

A successful demonstration means that you are ready to fine-tune the demo environment and start planning to bring the solution into full-scale production. At this point, the production architecture is defined, a plan for implementation and rollout is created, and further funding is obtained as needed based on the business case presented.

Rollout of the solution is usually delivered in incremental stages. During rollout, business analysts and users often come up with ideas beyond the scope of the implementation plan. These can be used to create new visions of what is possible. Thus, the cycle repeats itself.

Figure 1-2 represents this repetitive cycle. It begins with a vision and then pictures the steps we just described.

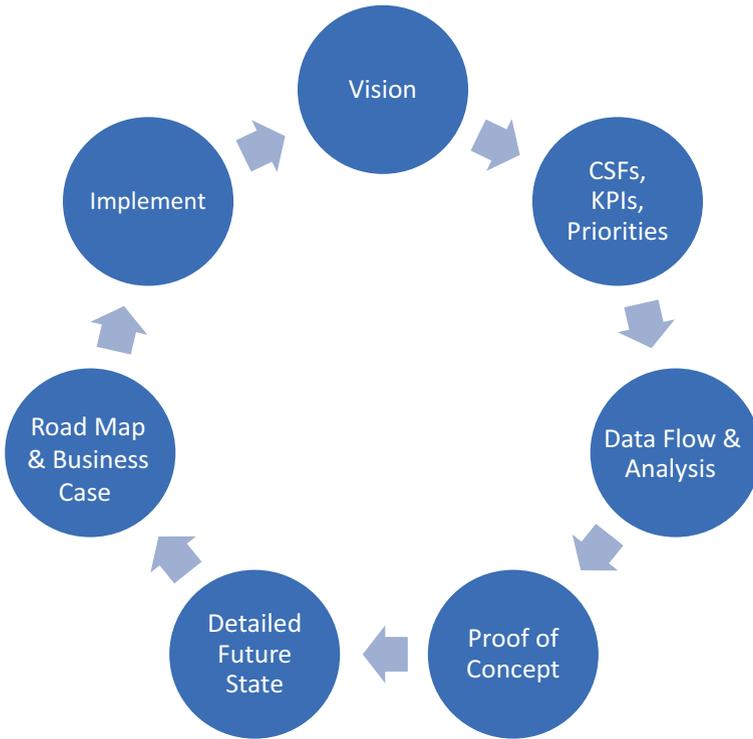


Figure 1-2. *Typical project life cycle*

I have described this process to many organizations over the years as a best practice. Most agree with the approach and say that they use a similar process. However, many do seem to want to capture the diagram, so there are many variations in how companies do this.

For some in technology, there is a tendency to jump from defining a vision to designing a detailed future state technical architecture before gaining buy-in or gaining a full appreciation for what is needed. I believe that a lack of involvement in the full process just outlined here is career-limiting. The ability to link business requirements to technology is seen as a core competency for many in senior technical roles and other management roles in organizations.

The visibility of your efforts as you take part in projects is also important. These efforts should be noticeable to key stakeholders so that there is little question as to your value to the project's success and to your organization.

Aligning a Career Development Plan

Being at the forefront of change and being viewed as an innovator has worked extremely well for me during my career. I invariably had a set of skills and knowledge that turned out to be in demand when I began exploring opportunities within other organizations or companies.

I accomplished this reputation by observing problems that needed solutions and then helped to define the solutions. I learned along the way that many people are good at pointing out problems. However, bringing problems forward without providing possible ways to solve them simply labels one as a complainer.

How do you put yourself on a track to become known as an innovator who provides visible value to your organization? One very important step is to work with your management in creating the right career development plan that aligns with your goals.

Since you are a person working in technology, some of your career objectives should include development of additional technology skills. Beyond attending education and obtaining certifications, an important way to develop these skills is through projects that require application of innovative technology. Such projects using unproven technology should be attempted where there is limited risk associated with them. Successes should be a cause for celebration and failures should be tolerated and seen as part of the learning process.

Most leading technology people seek out these kinds of projects, and not only because they make their day job interesting. They are also building a resume of experience that could be critical in obtaining their next job.

Sometimes overlooked by technical people is the need to develop non-technical skills. Many organizations believe that differentiation and innovation spring from having people that demonstrate an ability to communicate, listen, and mentor individuals and groups. Career development goals should include these activities, especially if your goal is to provide team leadership or lead a larger organization.

We'll describe these skills and career development in more detail in Chapter 5. I realize that some companies put little emphasis on career development these days. I have seen some remove the requirement for regular and timely performance appraisals that provided an opportunity to focus on career development.

Ultimately, you should own your career development plan regardless of your company's focus and look for opportunities for personal growth. If those opportunities are lacking, it is probably time for you to have a serious discussion with your management or move to another organization or company.

Summary

If management were to assess what you have done to improve your company's business, reduce costs, and/or deliver solutions, would the value you provide be evident? Would you be viewed as an innovator with the skills needed as the business transitions and changes, or would you be viewed as legacy talent?

In this chapter, we pointed to some signs that your career could be in trouble. These signs included:

- Little new technical skills development
- Possessing a limited understanding of changes in the business

- Intolerance in the organization for experimentation in creating solutions
- Lack of visibility of your efforts to key stakeholders
- Little emphasis on career development

If many of these signs apply to your situation, you need to develop a strategy for moving your career in a new direction or risk eventual displacement. Whether you can do that in your current organization will likely be partly driven by the flexibility of your management and the culture present within your organization or company.

It is also important for you to realize that loyalty is a two-way street. When you ask what your company or organization has done for you lately, if the answer doesn't match what you feel you deserve and your skills are in demand elsewhere, it might be time to evaluate employment alternatives.

Next, we'll explore an often overlooked area that can impact your career in ways that you might not initially recognize: the business culture present.

CHAPTER 2

Why Business Culture Is Important

Companies and organizations have unique cultures. A team that you are part of can have a culture very different from the cultural goals expressed by the most senior levels of the company or organization. Cultures can also vary among different teams in the same organization.

You developed a set of personal values and talents over your professional and personal life. Some of these values include your sense of accountability, ambitiousness, compassion, discipline, fairness, trustworthiness, logical thought process, entrepreneurial nature, adaptivity, and flexibility (just to name a few). You might have developed talents as a strategic thinker, shown analytical tendencies and the ability to put situations into context, and developed consistency and self-assurance in your approach. If the culture within your organization is misaligned with your values, talents, and what motivates you, then your job satisfaction and career aspirations can be severely impacted.

In this chapter, we'll describe the cultures that are typically present. We'll also explore the role of leadership in maintaining or driving cultural change and challenges senior leadership can face when they try to drive change. Finally, we'll look at aligning your values, standards, and passions to succeed within the cultures that are present and point out some important warning signs when there is misalignment.

This chapter is segmented into the following major topics:

- Business culture types
- Leadership behavior
- Cultural change and growth mindsets
- Picking the right business culture

During my career, I worked for several companies and organizations, some for more than half a dozen years. During that time, I saw some of them undergo significant cultural change. When I decided to leave a company, the company I left was sometimes very different from the one that I joined initially.

You should always be on the alert for cultural changes. Such changes will impact how you view your company or organization and your view of its future. As the world you work in changes around you, such changes can also impact your opportunities for career growth and success.

Business Culture Types

There are many views on how to classify the cultures present in businesses. In technology-oriented companies, the businesses are sometimes described as “start-up,” “newly public,” “mature,” or “legacy.” In government, the departments and agencies are sometimes described by their focus on research, setting policies, or providing operations and control of necessary services.

Research facilities and start-ups must be highly innovative since their mission is to solve previously unsolved problems and focus on deploying these solutions and bringing them to market. Sometimes, gaining significant early market and mind share through rapid incremental development is the primary goal. Monetary rewards for employees at such companies often include stock options, with the promise of possible substantial personal wealth in the future when the investment in innovation yields return on investment.

When start-up companies transition to being newly public entities, shareholders begin to drive an increase in focus toward the profitability of the company. This will often decrease the amount of risk-taking that the company is willing to take and the financial rewards to workers that the company provides. Less flexible management structures are put into place (and the founding CEO, who was the chief innovator, is often replaced). There tends to be growing focus on incremental solution improvements and support for existing customer needs at the expense of exploring highly innovative ideas.

Mature technology companies made the transition from providing and supporting a single innovative and successful product. They have become an engine of ongoing innovation, continually introducing new products by establishing effective processes and teams while keeping their eyes on competition. A balance of innovation and risk management makes these companies safer bets for long-term employment. However, they can also have less potential upside for career advancement and personal wealth.

Most government agencies function similarly to mature companies. Innovation is possible but usually is intended for incremental improvement. New initiatives and their upside are balanced with their potential risk since excessive risk is to be avoided.

When mature companies become overly fixated on margins and managing the business for maximum profitability, they run the risk of becoming less relevant to market needs and can miss fundamental changes. They are then often described as legacy companies.

Kim Cameron, Robert Quinn, Geoffrey Moore, and others define four business cultures that are frequently used to describe how companies and organizations operate. Though the nomenclature varies among experts who define these cultures, the characteristics they describe are quite similar. In this book, we refer to the four types of culture as:

- Process-driven
- Collaboration-driven

- Solutions-driven
- Innovation-driven

The four culture types can be characterized as either inward- or outward-focused and by whether they provide stability or flexibility in the organization.

Process-driven cultures rely on structure and control, usually in the form of organizational hierarchies. They often rely on strong top-down management. They tend to be inward-focused and stable. Coordination and efficiency are extremely important, and so these organizations are commonly driven by metrics focused on optimizing their internal processes. When trying to start a new initiative within this culture, detailed planning and selling of projects to management is required prior to their execution.

Collaboration-driven cultures are also inward-focused but are more flexible than process-driven cultures. They feature highly collaborative teams and organizations, valuing participation and cohesion and operating much like social networks. Since these relationships are valued, individual work efforts are less recognized than those of the team. Authority is situational rather than defined by job titles. Modern software development scrum teams focused on rapid delivery of incremental improvements often function this way.

The solutions-driven culture usually exhibits stability but is more outward-facing since there is commonly a focus on competitive threats. A company where this culture rules tends to be customer-driven, and it often measures its success in market share gains. Members are motivated by competition and are frequently quite intense. Tangible goals and metrics measuring success of individuals drives behavior. The solutions-driven culture often provides a bridge to any other cultures present in a company while taking a win-at-all-costs approach.

The innovation-driven culture is the most dynamic and entrepreneurial type of culture. It is both flexible and outward-facing. Organizations with this culture value people who are visionary, who are willing to take risks, and who revel in a culture that thrives on change. Success is measured by delivery of highly innovative solutions that sometimes create new markets. The structure of the organization chart in this type of culture is typically quite flat.

It should come as little surprise that successful start-up companies and research organizations have cultures that align most closely with the innovation-driven culture. Mature companies evolve to become legacy companies that are synonymous with process-driven cultures when they become mostly inward-focused.

Most companies and organizations also exhibit collaboration- and solutions-driven cultures during their lifetimes, depending on whether they are inward- or outward-focused and whether their structure is stable or adapting to change. As the culture present can change over time, these changes can lead you to reassess whether working at the company or in a specific organization is ideal for you.

Figure 2-1 illustrates the four cultures as well as where the four types of companies we described fit among these quadrants. We also illustrate that multiple cultures are commonly present in companies providing some cultural balance, especially in companies that are newly public or mature.

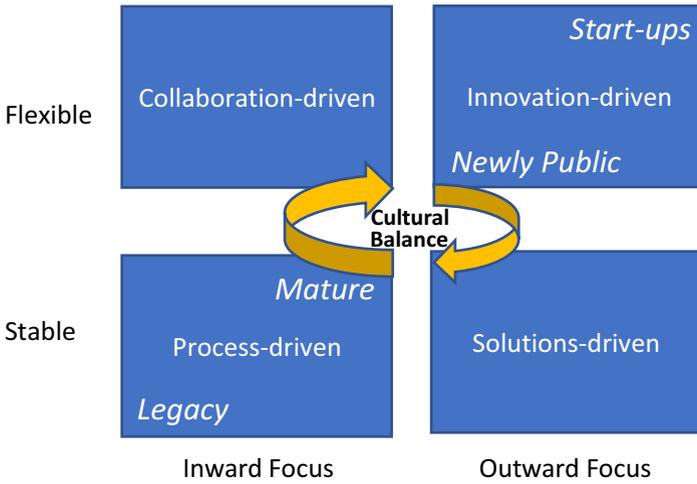


Figure 2-1. Business cultures and companies

Since these cultures often co-exist within the same company, it is possible to provide a diagram of their typical interrelationships. As noted earlier, the presence of a solutions-driven culture within a company can serve as the bridge between teams operating in an innovation culture and the rest of the company. These interrelationships are represented by Figure 2-2.

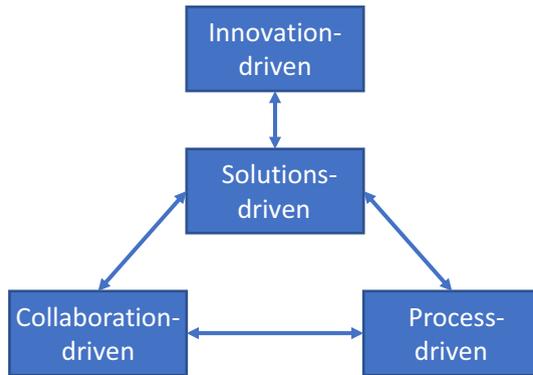


Figure 2-2. *Cultural interrelationships*

As companies evolve from start-ups to newly public, organizations are reformed to respond to new needs in running the business. These organizations tend to assume their own unique cultures as the company grows and matures.

Figure 2-3 illustrates the previously defined cultures but also illustrates their alignment with the company's organizations. The interrelationships shown are useful in understanding how various organizations work together in this company. Product management, marketing, and sales are shown as having relationships with all parts of the business.

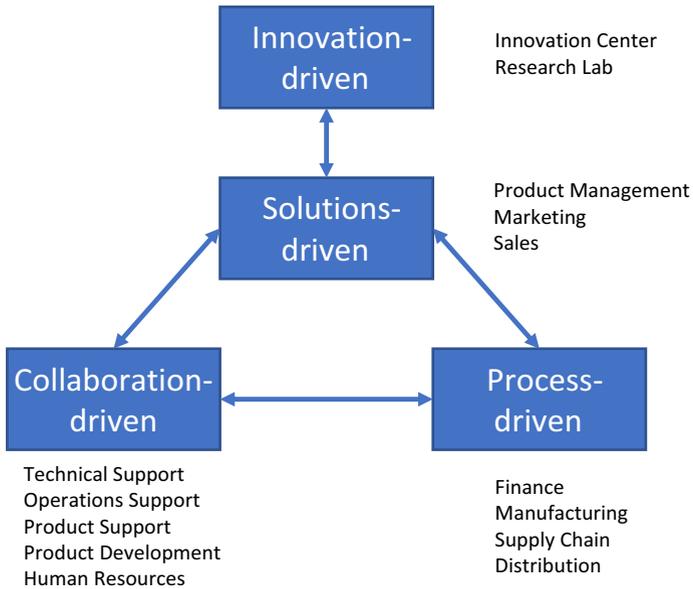


Figure 2-3. Organization relationships

Leadership Behavior

Leaders often behave in alignment to the dominant cultures within their company or the organizations that they manage. Most often, they are chosen based on their alignment to the culture present. However, in some situations, they are chosen to change the culture present. This is especially true when senior leadership or a board of directors feels a need to respond to new business threats and opportunities or there exists dissatisfaction with the direction of the company or organization under previous leadership.

In process-driven cultures where command and control are emphasized, leaders are chosen to provide direction and usually view their roles as coordinators, monitors, and organizers. They value efficiency, timeliness, consistency, and uniformity. This often comes at the expense of driving innovation.

In collaborative cultures, the leaders provide support as facilitators and team builders. They value commitment, communications, and development. The human resources organization often assumes a key role as a partner to leadership in building and supporting such efforts.

Leaders in solutions-driven cultures delegate key tasks but closely track business results and feel personally responsible for driving those results. The leaders are highly competitive, as are the people who work for them. Though top-line growth and market share gains are very important, these leaders also often focus on productivity and cost containment. They sometimes seek to improve their business results by establishing partnerships with others to improve market share.

In the innovation culture, the leaders provide vision. They like to be viewed as innovators and entrepreneurs. Some see themselves as operating start-ups, even if they lead an organization within a larger mature company. They try to anticipate the needs of customers and seek creative individuals to populate their organization, often coaching them to create the solutions that they envision. In such a role, it is important for the leader to provide consistent messaging about core values, break down any barriers among people, and facilitate a bottoms-up approach to development.

Figure 2-4 represents these leadership profiles aligned to these cultures.

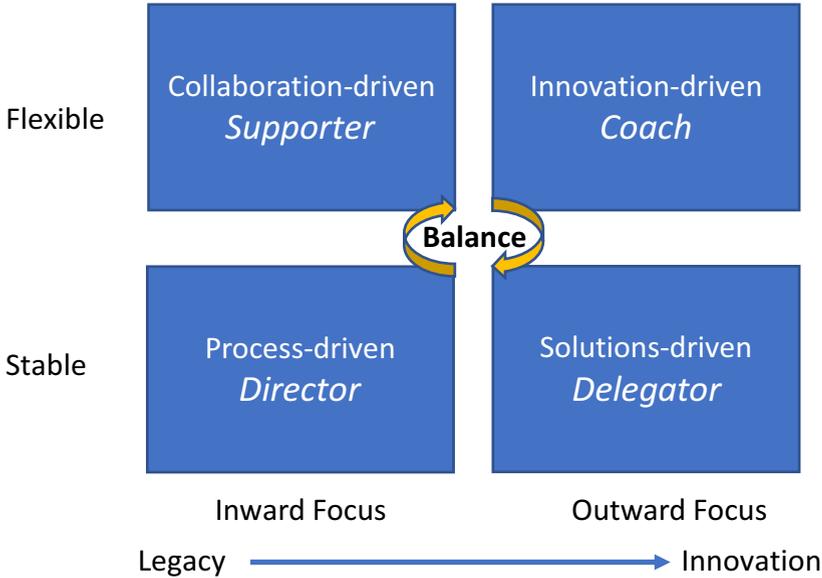


Figure 2-4. Leadership characteristics

In mature technology-oriented companies, since several of these cultures often co-exist, senior leadership must recognize roles played by the various cultures present. Outstanding senior leaders will often seem to move seamlessly among the various cultures, taking on the right leadership characteristics needed to drive innovation, respond to market pressures, and drive results in their legacy businesses.

Leaders vary in passion for their companies and organizations. They sometimes practice management styles that do not mesh with the cultures that they say that they desire. For example, I have seen some leaders feel that they must be the smartest person in the room and provide top-down direction even though their stated goal is to drive innovation. Where the leadership exhibits these characteristics, the company behaves in more

process-driven ways and is frequently playing catchup to companies that possess innovation-driven cultural characteristics.

Companies that appear to reinvent themselves in response to new threats and opportunities usually have senior leaders who constantly monitor the world around them. The senior leadership continuously learns and adapts to changing conditions and surrounds themselves with the smartest people they can find to avoid blind spots. Contrary opinions are sought, and groupthink (where everyone must agree with senior leadership opinions) is frowned upon.

Leaders with the most loyal followers usually hold and promote values that entire teams can believe in and share. Leaders who show empathy for employees and who also understand their customers' perspectives, are often the most adept at driving company growth and stability.

The metrics that drive the compensation of leadership can tell you a lot about the real values and culture being practiced at a company and within an organization. It is usually plainly evident to employees when business leaders have self-serving and misaligned values that drive their priorities.

Sometimes, senior leaders are driven by metrics tied to personal compensation at the expense of the long-term good of the company. They might try to hide their intentions in the public rhetoric they use and can succeed in fooling employees and investors for a period. However, their bad management practices usually eventually lead to equally bad financial results that sometimes become disastrous.

On the other hand, compensation that is tied to metrics that are consistent with the cultures being encouraged within its organizations can lead to positive business results. For example, companies that want to drive delivery of new revenue or solutions every quarter will often use zero-based tracking metrics and accounting methods. Those that want to drive growth of existing solutions as incremental product improvements are introduced might take a more cumulative approach. Leadership compensation metrics are aligned accordingly.

If you believe that the company culture and compensation model is inconsistent in driving the right behavior or that the metrics are being manipulated, you have choices you must make. You might enjoy your work, not feel that your employment is at risk, or hold out hope for changes for the better in the future. So, you might decide to continue in your current role.

However, if you see other employees that you highly respect voting with their feet by leaving the company or organization, you might rethink whether you should also seek a new job. In such situations, don't assume that the leadership is smart enough to recognize the negative outcome that they are leading the company toward or that they recognize the value that you or your fellow employees provide to the organization.

Cultural Change and Growth Mindsets

When the business is not seen as performing optimally, senior leadership must assess whether the problem is due to bad strategy, middle management providing bad direction, quality and skills lacking in the employees executing the strategy, or more widespread issues caused by the culture that exists. Solving business performance challenges can be extremely complicated since there are often multiple problems that must be addressed and multiple reasons as to why those problems are present.

Choosing to change the culture of an organization should not be taken lightly by senior management. It is possibly the most difficult change that can be made. Existing cultures have a momentum of their own. Familiarity and comfort associated with the old culture among long-time middle management and employees must be overcome to enable the new culture to take hold. When this change proves to be too difficult for existing employees, company leaders will sometimes resort to replacing them with new ones who are more open to change and who will embrace the new culture.

Carol Dweck, a leading researcher in the fields of personality, social psychology, and developmental psychology, describes people who can change and grow through learning and experience as possessing a “growth mindset.” Such people seek to improve themselves by facing and overcoming challenges, learning from criticisms and mistakes, and developing their skills in diverse situations. These individuals will accept a pending cultural change as an opportunity to grow personally and master a new situation. Having leadership and employees who possess such a willingness to change is invaluable when modifying company and organizational strategies and linking those to changes in culture.

If your mindset is “fixed,” you are in danger of being left behind. You are more likely to criticize the cultural change in progress and become withdrawn and defensive. If your company or organization can be described as having a fixed mindset, it is in danger of becoming irrelevant.

Satya Nadella, CEO of Microsoft, is credited with reinvigorating Microsoft by leading cultural change. He notes that those with a growth mindset tend to be listeners rather than talkers. The culture he describes is one of dynamic learning, resulting in an organization where knowledge and wisdom is respected. His expectation is that upon learning, leaders and employees will feel empowered to make things happen. Changing the culture depends on buy-in and execution by nearly everyone for it to be successful.

Projects chosen for prioritization within companies are frequently ranked in ways that align with the culture present. Legacy companies often avoid any projects seen as risky, whereas start-ups often seek out such projects where they believe the result will provide differentiated innovation. Mature and newly public companies will take on projects to gain competitive parity or advantage, especially where they believe that there will be a positive return on investment.

Successful projects aligned to specific cultural norms can drive the organization toward further adoption of that culture. Similarly, project failures can drive a company away from the culture associated with it.

For example, the success or failure of software scrum teams in delivering solutions will impact a company's view on promoting a collaboration-driven culture.

Mergers and acquisitions frequently occur among companies to address deficiencies in organic growth or to widen product offerings and geographic coverage. However, another reason for this activity can be an attempt by management to jumpstart cultural change. The company acquired might be viewed as possessing an innovation-driven culture that is believed to be lacking at the company making the acquisition.

Many large companies have discovered that the assimilation of an innovative company can destroy the underlying culture within the company that was acquired. Some large companies have determined that it is better to operate the acquired company as an independent and separate organization so that it can still take the risks needed to innovate, thus avoiding the destruction of the culture that made it so valuable in the first place.

Picking the Right Business Culture

In the right culture, you can feel at home, be highly productive, feel recognized for your work, and have the freedom to solve problems that you see in the business. In a culture that is a mismatch with your own values, you can feel stifled, frustrated, and spend too much time in what you consider to be useless activities.

Cultural norms impact how you will perform your job. When you evaluate moving to another company or organization, you should evaluate its culture by asking many questions.

For example, if you are a software developer, does the company use agile methodologies where experimentation is part of the process or a waterfall approach where project plans are laid out and strictly followed? Are you encouraged to work at home, or is in-office collaboration encouraged?

Are best practices shared among the group and rewards group-oriented, or do individuals hide their best practices and seek personal rewards?

If the passion that co-workers feel toward their workplace is important to you and in-office collaboration and sharing is a must, then you might want to observe the number of cars in the parking lot throughout the day when you visit the location of the organization. Do workers in the organization show up early for work, or do they arrive after 10 A.M.? Do they stay late at work, or is the parking lot half empty by 4:30 P.M.? If most of the organization arrives late and leaves early, chances are that most of the workers have lost passion for their job and do not see value in face-to-face collaboration to solve problems.

Methods and adoption of formal and informal communications among co-workers are also often culture-driven. Is the company overly reliant on meetings (either in-person or online) to make decisions? How quickly are decisions made? Is e-mail the primary means of communication or are chat and collaboration and teaming tools also used? How is knowledge captured, managed, and shared?

Prior to interviewing with a prospective company in which you are seeking a job, you should always research the company. If the company is a publicly traded company, you can get a view of what senior leadership thinks is important in annual reports and other financial statements. You can also review what current employees and past employees think of the company by exploring social job sites where their views are posted.

You should use the interview process when seeking a new job to reverse the process a bit and interview your prospective management and co-workers. Use this opportunity to gain an understanding of the culture of the organization by asking about how work is delegated, accomplished, and rewarded. Is it a team effort or an individual pursuit? Observe whether potential co-workers appear to be enthusiastic or bored. You can also use the interview as an opportunity to share with prospective management the type of work environment and culture that you feel most comfortable taking part in.

If you have passion for your work, you will spend a significant amount of your life focused on it. You will find more satisfaction in being part of a work culture that aligns with your values. You might think that you can change a culture by becoming part of it. However, unless you enter the company in a leadership position or are being brought in by leadership to affect change, your chances of changing the culture are remote.

Summary

Cultural alignment with values directly impacts the job satisfaction you will feel as well as the satisfaction of your co-workers. When alignment occurs, the organization will execute with higher efficiency. Your chances for continued success within the company or organization will grow as well.

You must first understand your own values and the passion you have for your work. This understanding will lead you to consider whether there is alignment with the culture in your current company or organization and whether a job change could be necessary.

Your evaluation of the situation is an ongoing process. Your organization's culture might shift and change when new leadership assumes control or in reaction to unexpected emerging business threats. Your values and views about the culture that you are seeking might also change over time. It is up to you to be on the lookout for these changes.

An organization's culture can sometimes lead to political cliques and limit the diversity present. This will impact the quality of decision making and ultimately could impact your job and opportunities.

Understanding the culture present in the organization is a prerequisite for understanding the politics present. Political considerations are the subject of our next chapter.

CHAPTER 3

Political Considerations

People in technology careers sometimes have great difficulty in dealing with the politics present within their organization. Most technical people pride themselves in having logical thought processes and often view politically motivated decision making as anything but logical. However, there is often a great deal of logic applied to political decisions, though the motivation behind the logic is foreign to the way in which many technical people are motivated.

For example, I have encountered many technical people who believe that promotions and compensation rewards should only be based on demonstrable skills and on their performance in delivering projects that meet or exceed design requirements. There can be other factors underlying how such promotion and compensation decisions are made.

Where political motivations are behind decisions, the selection of individuals for recognition and promotions can be viewed by managers as an opportunity to enhance their own reputation in the eyes of their management. The manager making this decision might be more concerned about the risk of looking incompetent if they make what could be viewed by their management as a “bad” promotion. The manager might believe that they can improve their chances of personal advancement by making a promotion that a consensus will view as “good” and might

lean toward a safer choice. Promotions and appointments are sometimes decided in favor of employees who fit into senior management views of the “right” employee profile and whom they want to groom for advancement.

Our goal in this chapter is to help you understand and navigate the politics in your working environment. While this subject might be distasteful to you, we hope that in reading this chapter you will come to better understand your situation and some of the techniques that you might use to advance your career.

We’ll discuss the following topics in this chapter:

- Identifying an insider network
- Expanding your networks
- Other steps you can take
- Signs you should move on

Understanding the political footprint of an organization is something you need to do, whether in your current organization or when moving to a new job. We’ll begin our discussion by providing guidance regarding how to identify insider networks present in organizations and companies.

Identifying an Insider Network

Insider networks exist at every large company where I have worked. Companies where employees tend to stay for many years (or even decades) often have the most widely established insider networks. Large groups of people in such organizations adopted the company culture present when they were hired and grew up in it together. Family relationships can also play a role in who is politically connected at some companies.

Management will sometimes bring into an organization people who reliably delivered solutions to their problems in their previous roles or companies. Management wants these people to work their magic again. However, the new people brought in will be seen by previous insiders

as management's politically connected individuals. If the new people attempt to lead cultural change promoted by senior management, they can face public or, more frequently, hidden opposition from legacy insider networks that will get in the way of change.

Large insider networks often lack necessary diversity that we will describe in the next chapter. The insiders who get invited to meetings where serious debates occur about upcoming decisions might not match the organizational chart of who should be involved. Organizational meetings become mere formalities after the real decisions are made.

The lack of open debate can be intended when an ostrich-style of management is in place. Senior management might not understand the true nature of problems nor do they want to. Their heads are intentionally stuck in the sand.

The management that reports into senior management will insist that all is right with the world, possibly claiming that they are already solving the problems being discussed. Meanwhile, those who would like to solve the problems within lower levels of the organization are stifled, lest they call attention to uninformed choices being made within management.

This sort of political pressure leads to a propagation of groupthink. Critical thinking is frowned upon. Such organizations can miss escalating signs of problems in their business. They become slow to react to new competitors and fail to meet new demands from their customers. They are unable to deliver what is currently needed, let alone provide visionary solutions that demonstrate real innovation.

In some companies, leaders are rotated among various organizations every couple of years to help assure that political fiefdoms are not maintained. This is also done to vary the experiences and build the resumes of those leaders being promoted along a company's senior leadership development track.

There can be problems with this approach. The first year, new leaders in an organization will learn how it operates and its problems. In the second year, many become focused on lining up their next leadership job instead of fixing the issues or problems in the organization that they manage in their current role. So, this can present its own set of political problems and lead to little proactive change occurring.

If middle management reporting into these rotating managers is stagnant over many years, then the middle managers might simply continue to manage the way they always have. They will utilize their long-established network and avoid any changes promoted by management with which they disagree, simply waiting for the next change in leadership to occur.

Some senior leaders try to pit insider networks against each other by executing a “survival of the fittest” strategy. They encourage the existence of highly competitive insider networks formed around core business strategies. When faced with an outside business threat and a major decision, the senior business executive might decide based on the recommendation of the group that has the strongest presence instead of weighing the quality of the arguments being made.

When the stronger personalities among the participants rule, other “weaker” networks sometimes drop out, even if they better understand how to solve a problem. Eventually, they might dissolve out of frustration. Any innovation, such as it is, becomes more likely to be directed from senior levels of the company.

Figure 3-1 illustrates the characteristics of how insider networks typically behave in the two types of decision making that we just described. Groupthink more often aligns with protecting margins. Argumentative decision making often occurs when gaining market share is top of mind. The diagram also indicates a more balanced approach that seems to be rarely attained, where strong insider networks rule.

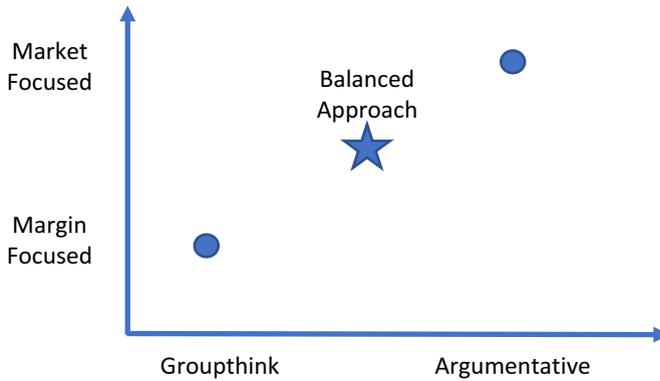


Figure 3-1. Insider Network Characteristics

Expanding Your Networks

Once you have identified one or more insider networks where real power seems to reside, what should you do? You can try to join one or more of the existing networks. You might instead build your own network. You could choose to do both.

You can sometimes become part of an existing network by monitoring the problems that it aims to solve, aligning with key decision makers in the group and solving those specific problems that have been identified. Such networks are sometimes quite capable of calling attention to problems but are less gifted in solving them. You will need to carefully tailor your approach and position your efforts as complementary to the group's efforts. Prioritize your activities around solving the most impactful problems that they want to address.

Such coalition-building can provide a means to extend your own network and sphere of influence. If the company or organization leadership is trying to mitigate disruptions or inefficiencies caused by these networks, you might begin to be viewed as a useful party in that effort because of your ability to infiltrate them.

Regardless of your success in penetrating insider networks, you should always try to extend your own network. Your network should cross political divides but also extend to those outside of your company or organization. Such individuals that take this approach will seem to know everyone within the company that they work at, but also have surprising contacts to outsiders in similar roles.

Your network can be incredibly useful for learning about and connecting you to future job opportunities. Most job opportunities that I encountered in my career came from relationships that I had with individuals in earlier roles and companies. As time passes, some of your co-workers will likely move into senior leadership positions in other organizations or companies and provide you with similar opportunities.

Today, professional social networks such as LinkedIn make building and maintaining your networks easier. You should never miss an opportunity to extend your network by meeting new people within your organization or company and at industry events and conferences. You should connect with the external contacts that you make. You should also use social media to share your knowledge by expressing opinions and writing articles to create broader awareness of your skills through the contacts that you've made.

Other Steps You Can Take

You should not take organizational and company politics personally. The political nature of the organization and company existed before you became part of it and will likely remain after you depart. In addition to building and extending your networks, there are other proactive steps you can take to deal with the political situation you find yourself part of.

Think about your personal goals and develop a strategy beyond that of simply building your network if you have an innovative idea that is not endorsed by senior management or insiders. You might ask a politically connected individual to serve as your mentor and help you turn your idea into reality. It might become possible to convert your mentor into a

sponsor who will help you sell the idea. They can serve as a lobbyist for your views at meetings to which you are not invited.

You must understand the business value of technical solutions that you wish to engage in. Especially focus on “win-win” opportunities where the reward to risk ratio is high. You also should gravitate toward projects and initiatives where the credit for success is likely to be shared and where your role will be plainly apparent to your management chain.

Though a mentor or sponsor can be helpful, you might need to become directly involved in selling your ideas and the role that you wish to have. Having knowledge of how to apply some best practices used in selling can be useful.

One method frequently used in sales is to gather the relevant organization charts of those who need to be sold to and identify the decision makers, evaluators, gatekeepers, approvers, influencers, and coaches. You should also seek to understand whether these individuals are friends, enemies, neutral, or have an unknown stance regarding your proposed project. You must turn enough individuals in key roles from enemies and neutral parties into friends of the project to get backing to proceed.

You will likely find it useful to document the roles of various people connected to the project that you want to drive. A technique sometimes used to understand these interactions is the creation of a RACI chart or matrix.

RACI identifies who is responsible for the work, accountable for the work (e.g., they own its success), consulted about the work, and informed about the work. Experience tells us that while many people in an organization often want to be informed about a project, those who make the project happen are responsible for its creation, accountable for success, and/or consulted as key stakeholders.

Figure 3-2 illustrates a typical RACI chart for a software development project. In the chart, “R” indicates those individuals responsible, “A” represents those held accountable, “C” represents those consulted, and “I” represents those individuals who are informed.

CHAPTER 3 POLITICAL CONSIDERATIONS

	Project Manager	Architect	Developer	Release & Test	Financial Unit (CFO)	Business Manager	Line of Business Stakeholder	IT Manager
Project scope	A	A	R			I	C	C
Work estimate	A		R			I	C	C
Budget	A				R	I	C	C
Risk analysis	A	C	C	C	R	I	C	C
Project resources	A	I	C	A		I	C	R
Data management	A	C	C	R		I	C	C

Figure 3-2. RACI chart

Once you understand these individuals’ roles in your project, you can better map your strategy for overcoming political challenges. Your proposed project should have documented objectives, justification, deliverables in scope and out of scope, acceptance criteria, risk, needed budget and resources, and schedule. Benefits described in the project’s justification should be tangible financial goals. You will want to focus your conversations with the individuals identified in the RACI diagram around the documented areas of the project that they care about.

If you get a decision to move forward, you must maintain buy-in from those identified in the RACI. They should understand why the decision to move forward was made and you should enlighten them if they appear confused, as you will need their help on the project.

Regardless of the outcome of your efforts, you should always seek to improve the impression you leave with your sponsors and their management. This is part of managing your personal brand that we will describe in Chapter 6.

Signs You Should Move On

There can be many signs that you are not politically connected to the right places in your organization. Your advice might be ignored. Management might not be candid in sharing with you what is really taking place in the organization. You might have delivered one or more successful projects or solutions, but when your management received accolades, promotions, and additional compensation, you were not similarly rewarded.

These are signs that the time might have come for you to change the organization you work in or the company that you work for. You should first express your concerns to your management. It is possible they are simply inward-focused and have not considered the possible impact on your job satisfaction or your willingness to remain part of the teams. That said, you probably just discovered that any rewards that you might expect in the future are rewards that you will need to fight for.

If you have succeeded in establishing an external network, finding a job elsewhere might be the right answer and not at all difficult. Once you've come face to face with how political realities and considerations can affect your work life, you will probably have a lot of questions that you'll want to ask of prospective employers about the politics in their organizations before accepting a new job.

Do not be too surprised if your current organization promises to match your compensation or improve your role once you've decided to leave. I have found that sometimes management will only react when backed into a corner. If you've been successful in the organization, management might fear that your departure will hurt their reputation among senior leaders. I personally find such offers to be offensive, as I believe the time to reward people is when they are delivering solutions, not when they have one foot out of the door.

Alternatively, you should not be too surprised if, in a company that is trying to get younger and increase margins and where technical skills and experience are not respected, your pending departure causes little response from management. This can occur even though there might be a lot of angst expressed by your co-workers about your pending departure. But this is another sign that you didn't have the right political connections or management backing and that it is time to leave.

Summary

Understanding the political influence chart of an organization is critical if you want to fully gain the recognition that you believe you deserve or move to senior leadership positions. If you ignore the political realities of your company, you will likely become frustrated.

You must take steps to take part in this process and attempt to gain entry. If you can't penetrate the insider networks or are generally ignored unless there is a problem that no one else can solve, then your upside is severely limited in the organization.

Regardless, you should always seek to build your network. The network should include internal stakeholders, co-workers, and external technical and business folks with similar skills and interests. The external network will provide you with a view into how other similar companies and organizations are responding to changes in the market and can provide you with options for employment elsewhere.

As you begin to explore options outside of your organization, your skills and experience and exposure to diversity can provide differentiation. We'll next explore the role and importance of diversity in achieving your career aspirations.

CHAPTER 4

Why Diversity Matters

The diversity in your company or organization will impact its bottom line and the success of your career. McKinsey periodically surveys the diversity of companies and their performance and publishes the results of their findings. The January 2018 report¹ indicated that companies in the top quartile of leadership gender diversity outperformed those in the fourth quartile by 21 percent for profitability. Those in the top quartile for ethnic and cultural diversity outperformed those in the fourth quartile by 33 percent for margin. Many also believe that a diverse company is more adept at competing on a global stage among the many kinds of cultures present around the world.

Diversity takes many forms in companies. In addition to gender, ethnicity, and culture, other forms of diversity are measured based on ranges in age, physical abilities, personalities, values, work styles, experience in various industries, education, and technical skills.

For example, an ideal software developer is often believed to be passionate and determined; possesses an attention to detail (since they are always looking for failure points while testing their work); is highly competitive yet open-minded, creative, and a strategist; and realizes the importance of documenting their work. You probably realize how difficult it is to find an individual with all these characteristics. Instead, it is more likely that several developers with diverse skills and backgrounds will be brought together to form a team to fulfill these roles.

¹McKinsey & Company, *Delivering Through Diversity*, <https://www.mckinsey.com/business-functions/organization/our-insights/delivering-through-diversity>

Some companies choose to focus on the diversity of the entire company, taking a macro view. Too many times, I have seen companies do this to claim that they are a diverse company. Yet in some of these companies, the lines of business are largely homogeneous. Information technology employees, software applications developers, and other technical roles might be largely male or not reflect a wide mix of minorities and ethnic backgrounds. Those hired to non-technical roles, such as in sales and marketing or human resources, might boost the overall diversity numbers for the entire company.

Others believe that the benefits of diversity are so important that diversity must exist within each line of business in a company, including within organizations that produce and manage technology. They take a micro view of their diversity initiatives. My own experience is that the most diverse technical teams that I managed or was part of were my best performing teams. They were also the teams on which I had the most fun.

In this chapter, we'll describe how diversity will matter to you. The major topics we will cover are:

- Value in many perspectives
- Indications you need diversity
- Creating diverse teams
- How diversity builds leaders

As this book was being published, there was much speculation about how to increase diversity in technology-oriented companies. Various groups of people were being encouraged to enter science, technology, engineering, and math (STEM) fields so that companies that relied on producing technology-based solutions could become more gender, racially, and culturally diverse.

Many previous efforts at retaining a diverse mix of people focused on quotas and diversity goals. Those efforts met with limited success. Increased emphasis is now being placed on inclusion of diverse

individuals in decision-making processes that take place at companies. This emphasis can provide everyone with a greater appreciation of the value of diversity.

You might question where this value comes from. We'll begin our exploration of this topic by looking at the value that having many perspectives can provide.

Value in Many Perspectives

Companies and organizations with strong and confident leadership seek many perspectives when considering alternative solutions that will address problems. They do this precisely because they are focused on results and realize that they must avoid incomplete evaluations of situations and self-deception. Considering all of the causes of problems and a variety of options for solutions drives fact-based decision making and can result in more creative and innovative solutions. More significantly, the “right” solution for solving a problem is likely to be found.

There is much evidence to suggest that this is true in studies by experts who focused on behavior and how the human mind solves problems. James Surowiecki documented how bringing together large diverse teams of people can sometimes solve problems that were not believed to be solvable. The “wisdom of crowds” can generate more accurate predictions and better solutions to problems than a less diverse panel of experts.

Daniel Kahneman is well-known for his expertise in how people draw conclusions and make decisions. He has described why and how people jump to wrong conclusions. For example, he describes the importance of sample size and cautions against delusional optimism and overestimation of benefits that can occur when bringing together experts. He also notes that some people are risk-averse and will exercise exaggerated caution compared to others. Furthermore, many will overestimate the probabilities of unlikely events, overweighting them in their decisions.

A diverse team does not eliminate such individual tendencies. But when healthy debate occurs within the team, it can help ensure that a more balanced assessment of problems and potential solutions will be considered.

Smart leaders realize that answers to difficult problems are unlikely to be simple. Data is sometimes unreliable and often does not provide simple explanations as to the causes of problems. There is danger in jumping to the wrong conclusions when working with limited information. Leaders who understand this will parse through data and other content and listen to those who have points of view very different from their own. As Kahneman suggests, such leaders don't simply care what decision is made. They place great emphasis on understanding and replicating how smarter decisions are made.

Indications you Need Diversity

Everyone gets along. Your team cranks out their positions on key decisions and determines and builds solutions with little debate, often taking a divide-and-conquer approach when problems need to be solved rapidly. Management provides their views regarding project direction and all appears to be right with the world. Why would anyone mess up this “well-oiled machine” by introducing diversity?

Your management and some individuals on the team might see things differently. They might be disappointed in your progress and feel as though competitors are moving faster. Management could also be asking for more innovation from your team without clearly indicating what they mean.

Your team could have a reputation for being reluctant to try new techniques and approaches. Members of the team might be reluctant to reach out to stakeholders in the lines of business for input. A common reaction from certain team members to suggestions that problems should be solved using different techniques could be the statement, “We’ve tried that in the past and it didn’t work.”

One interesting indication that a lack of diversity can impact the quality of technology solutions was drawing a lot of attention as this book was being written. The growing adoption and development of artificial intelligence (AI) solutions is exposing a number of inaccuracies and biases in some of the solutions being created. Lack of diversity among AI developers and data scientists is believed to be the cause.

AI developers and data scientists have sometimes chosen the wrong data sets or data sets based on bad assumptions. This results in biased models. If the team reviewing the models is biased, they might not notice inaccuracies or could, in fact, be responsible for creating them. Lack of diverse perspectives can lead to bad or incomplete recommendations.

Your team's problems caused by lack of diversity could be fully realized by your management when competing teams or outside competitors produce more successful alternative solutions or when the solutions that you produce are not widely adopted. The successful solutions provided by others could even be based on similar ideas suggested within your team but not seriously considered.

You could then be faced with senior management consulting with other teams with growing frequency, begin to feel a loss of influence, and hear of growing speculation about the breakup of your team. Your team members might express frustration at the lack of their success and many might depart to join "more flexible" teams.

If this sounds familiar, it is probably time to introduce some new personnel into the team and improve diversity. To avoid stagnation, some organizations will periodically rotate team members among various teams, with an eye on continually introducing a stronger mix of people with differing opinions for group problem-solving engagements. Outside stakeholders are sometimes also sought to provide ongoing advice on direction. The goal is to mix people with a wide range of perspectives and approaches and enable the team to become an engine for innovative ideas and solutions.

Organizations that are good at this have a firm notion as to how rational decision making should work. Team leaders and senior team members guide the process. Team members tend to work harder because they know that their positions will be respected when they have thoroughly researched their views and can successfully defend them within their group as well as to other interested parties.

Sometimes, when teams begin to struggle due to lack of diversity, they are the first to recognize the problem. They respond from within by requesting that changes be made within the team while seeking more participation by other organizations and individuals with a stake in the solution.

Creating Diverse Teams

In forming or modifying a team, leadership should prioritize the gathering of complementary but diverse individuals open to the ideas of others. Teams often consist of a mixture of introverts and extroverts, and the people will possess a variety of technical skills and skill levels. Desired diversities of people and backgrounds can include cultural, racial, and gender variation as well as a varying willingness among team members to take risk.

The size of an ideal team is usually about five to seven members. I personally had much success leading teams of this size. When decisions need to be made, several alternative options should always be on the table and the decision about which option to adopt should align with key business goals. When critical decisions are made, they should be well communicated to gain buy-in by stakeholders. The success of decisions should be measured.

Age diversity among team members can be particularly useful in spreading wisdom learned from past efforts. However, the sharing of information in diverse age groups can present challenges in the methods and tools to be used for collaboration.

Baby Boomers and Generation Z age brackets tend to like in-person meetings more than Generation X or Millennials². E-mail is popular among Baby Boomers and Generation X, whereas Millennials and Generation Z like social networking and persistent chat. The leader must adopt an approach that enables better collaboration and increased productivity of everyone on the team. They must then reinforce usage of the selected methodology and tools used for collaboration.

Team members will often feel stress when under tight deadlines or when solving particularly difficult problems. Team leaders who exhibit a sense of humor, defend their team's efforts and recognize their performance, and point out the value of diverse opinions are particularly effective. The leader might need to deflect criticisms about team members when they feel that the criticisms are unwarranted and get in the way of productivity.

Teams and their leadership make decisions regarding solution development and team membership in phases. The first decisions during solution development start with the setting of goals and objectives. Team leaders and senior members already on the team often lead this phase.

In the next phase, decisions about who will be on the team are made. If this is a new team, individuals with needed skills are selected and gathered. If the team previously existed to perform an earlier cycle of the project or is coming from a different project, the team membership might be adjusted based on newly identified skills requirements or other diversity needs. Processes and owners of tasks are defined in this phase.

Plans for the potential solution or changes to an existing solution are then debated. As decisions are made, the solution's evolution continues. The team might need to evolve further if additional skills are required that were not previously accounted for when these decisions were made.

²Avanade, Microsoft Teams supercharges collaboration for Millennials to Boomers, <https://www.avanade.com/en/blogs/avanade-insights/collaboration/microsoft-teams-supercharges-collaboration-for-millennials-to-boomers>

When an iteration of the solution is delivered, it should then be evaluated for whether it meets the stated goals and objectives. The effectiveness of the project team and lessons learned during this cycle are also reviewed. If the goals and objectives of the cycle are met in the solution that is delivered, new goals and objectives might be decided upon for a next iteration of the solution. The cycle is then repeated.

Figure 4-1 illustrates this cycle of team decision making during solution creation.



Figure 4-1. *A Cycle of Team Decision Making*

Teams will often remain in place to pursue further iterative development and solutioning or to build solutions for other problems. As we've illustrated here, teams continually undergo fine-tuning throughout the repetition of this process.

Today, many organizations develop technology-based solutions iteratively in fast-to-succeed or fast-to-fail cycles repeated every 2 to 3 weeks. This approach can mitigate the risk of massive project failures months later.

How Diversity Builds Leadership

New leaders are sometimes identified and created during team activities. Such individuals can be identified if they show a willingness to take on responsibilities, share skills and mentor others, and lead discussions where opinions are debated. They also sometimes reach out to stakeholders for advice when others on the team are reluctant to do so.

You can use diverse teaming opportunities to advance your own career by taking on these unofficial leadership roles when such opportunities are presented. Such experience can lead to you being offered formal leadership roles later.

Great leaders of teams instill a sense of mission within the team. They build communications, cooperation, cohesion, and trust among diverse team members and stakeholders. They must manage any conflicts and facilitate solution brainstorming and debates about paths to building those solutions.

While directing the entire team toward its goals, they also try to maximize the contributions of each team member and other contributors, taking full advantage of the skills and perspectives that they possess. They make sure that team assignments are appropriately handed out and are clear about individual accountability in fulfilling those assignments.

For example, leaders of diverse teams must assure that the ideas of introverts and junior members are heard and not overwhelmed by the opinions of extroverts and long-tenured individuals. If shy junior members are uncomfortable challenging the opinions of senior members, the team leader must step in and lead by example, suggesting that there are alternative arguments. Any team will function best when everyone is thinking and offering input into solutions.

Leaders drive better performance and higher engagement of their team by possessing an outward mindset. As explained by The Arbinger Institute and others, this mindset requires that the team leader looks outside of their needs, objectives, and challenges. They instead focus on the needs, objectives, and challenges present in their team, among stakeholders and clients, among partners and external teams, and present within senior company leadership.

Figure 4-2 illustrates a simplification of how leaders reach out to these key touchpoints to see beyond themselves. The overlap shown is meant to indicate where leaders embrace the mindsets of all parties involved in the creation of solutions. Technology solutions are more likely to be successful when there is large overlap between the needs, objectives, and challenges of the team leader and those of their key constituents.



Figure 4-2. *Touchpoints for a team leader*

When team leaders are inward-focused, the resulting team performance can be awful. The team will be more likely to operate in isolation, and benefits of diversity within the team can be muted. The solutions produced can miss the mark in the eyes of stakeholders and management and prove difficult or impossible to integrate into other technologies developed by other teams.

Summary

Diversity within your organization and on teams that you are part of can lead to more rapid visualization and production of better solutions. Intentionally seeking out such teams and positioning yourself for leadership roles within those teams can help you build your reputation and your resume.

If you are part of an organization that lacks diversity, you might already find that the organization's reputation is suffering due to an inability to innovate or deliver competitive solutions. If you are in such a situation, you might have an opportunity to propose the creation of your own diverse team to pursue a skunkworks project (a project that promises to deliver radical innovation and operates outside of the organization's normal working and management environment). Such projects can also be career-enhancing, especially when they prove to be successful.

When your organization does not make diversity a priority and you strongly believe in its importance, perhaps it is time to look elsewhere in the company or outside of it. During job interviews, you can emphasize your previous experience working on diverse teams or indicate that working in a diverse organization is one of your goals. That discussion will likely enhance your prospects for employment by other innovative organizations that appreciate the value of diversity.

Many of the skills needed for participation in diverse teams can change over time. Next, we will look at how you can develop skills that will be in demand.

CHAPTER 5

Developing the Right Skills

Your career in technology takes place in an ever-changing world. Advances in technology enable the building of innovative solutions to difficult or previously unsolvable business problems. Companies and organizations that design, build, and maintain these solutions require workers who possess the skills that can make this happen.

During my own career, technical skills that were in demand constantly changed. For example, I have seen many programming languages come and go. My early programming experience included coding in Fortran, COBOL, and C. Today, there is not much demand for programmers skilled in those languages (other than for maintenance of legacy applications), while those individuals with Python, C++, and Java experience are much in demand.

How data is manipulated and managed has also changed during my career. Data volumes needed for analysis that provide new insights continue to explode in size as data is gathered from a broader array of applications and devices. Data is most commonly stored in a variety of data management systems today, including relational databases, Hadoop, and NoSQL databases. Analytics is applied to data at rest in data management systems but also to streaming data and in edge devices. The data is increasingly used in the analysis of trends and to predict future outcomes using machine learning and deep learning algorithms.

Agile approaches to development of software solutions are now widely adopted. Many developers are now building solutions that consist of a collection of microservices and are deploying these solutions using containers. “Serverless” strategies and programming using RESTful APIs is also increasingly common. As the sophistication of the tools and methodologies has increased and flexibility in deployment locations has grown, the variety of business problems that can be solved has also grown.

In this chapter, we describe how to anticipate and keep up with these changes and the impact of these changes on the skills that you will need. Many of the technical skills relevant today in technology-oriented careers will no longer be relevant 20 years in the future. In this chapter, we cover:

- Anticipating technical skills needed
- Growing your technical skills
- Skills always in demand
- A changing mix of skills

We will begin by exploring how you can anticipate a need for new skills and discuss some of the skills that were in demand in growth areas for applied technology solutions at the time this book was published. You might compare your own skills to those we discuss when you read this section.

Anticipating Technical Skills Needed

When this book was being written, there was much discussion about the coming impact of artificial intelligence (AI), blockchain, the Internet of Things, 3D printers, and quantum computing. Next generation, multi-Exabyte-sized, widely distributed NoSQL databases were beginning to appear. Spark-based in-memory analysis of data was becoming increasingly common. Much of this technology requires that you develop

new technical skills if you are to take part in building the solutions to business problems that these technologies can enable.

We realize that some Chief Information Officers (CIOs) and IT management might not be thinking about the future. They sometimes see their primary role as maintaining current levels of operation in their organization and controlling costs, particularly when they report into the Chief Financial Officer. In early 2018, many IT managers were still filling jobs that included legacy database management development and support, legacy code development, desktop support, network support, and basic business intelligence and reporting. Some were still reluctant to move to cloud-based solutions, fearing the impact to many of their employees possessing legacy skills and the need to invest in developing new skills through retraining or hiring.

Meanwhile, some of your more forward-thinking co-workers and former co-workers are developing new skills so that they can work with newer technologies and take on more innovative projects. They sometimes do this by moving to different organizations and companies. By networking with them, you have an opportunity to gain a unique view as to what is required to make your next job transition. They can provide a wealth of knowledge regarding the skills you will need to develop.

You should regularly research job opportunities within your company and at other companies that are embracing newer technology solutions. Investigate the jobs posted by such companies and the skills being sought in online job sites. Interview with other companies periodically to gain further insight into job requirements. Attend conferences where popular and trendy technologies are the focus and learn from other attendees (as well as the presenters).

As this book is being published, some of the growth areas where specialized skills are noticeably in short supply include data science and advanced analytics, AI, cybersecurity, user experience design, and augmented or mixed reality. Needed skills include the highly technical skills we outline here as well as “soft” skills that we describe later in the chapter.

For example, data scientists possessing the following skills are sought by many companies:

- Programming ability in Python, C++, or Java
- Probability and statistics knowledge using R and other analytical tools
- Expertise in algorithms and their applicability in solving business problems
- Ability to work with structured and semi-structured data

In Internet of Things (IoT) applications, device engineers, and data scientists must determine where it makes sense to deploy sensors that gather needed data and the logic that applies the algorithms. Automated tools are helping engineers determine where to place certain sensors today. Automated finite element analysis and computer-aided design tools enable engineers to design more robust “hardened” devices.

The code that is developed by data scientists might be deployed against historical data stored in the data management system, in the real-time data stream, or at the remote edge device itself. Data and information architects often provide input into the sizing of IoT hubs (or event hubs) that must scale as device transmission data volumes increase.

Figure 5-1 illustrates where machine learning code might be deployed in an IoT infrastructure. The algorithms are deployed to locations indicated by “ML” on the diagram.

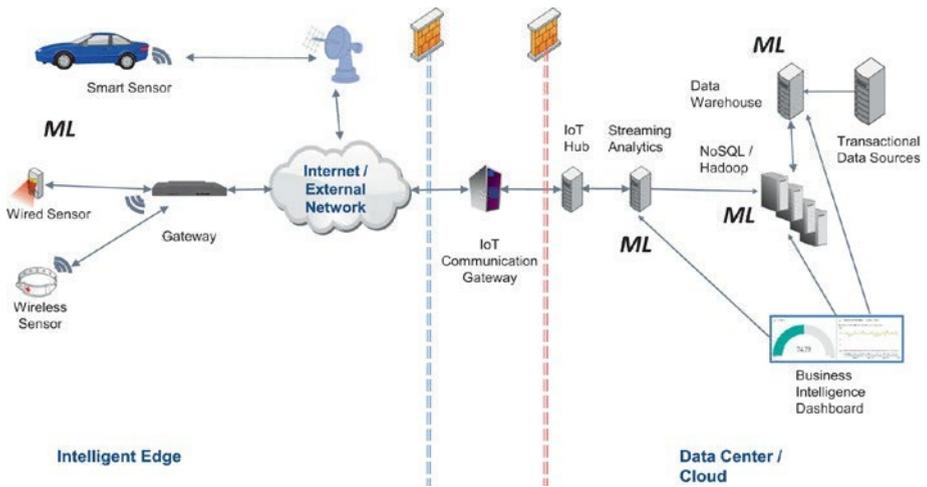


Figure 5-1. *IoT and machine learning locations*

In the back-end, deployment is shown in a streaming analytics engine, a NoSQL Database or Hadoop cluster (also sometimes defined as a data lake), and a data warehouse. Business intelligence tools can access any of these locations.

More advanced AI applications can require a need for skills related to deep learning. The data scientist develops multi-stage neural networks to build these solutions. They sometimes apply such solutions to robotic devices where knowledge of engineering and the capabilities of such devices can prove useful, even when an engineer serves as an advisor and partner.

Those involved in developing cybersecurity solutions must possess knowledge in one or more systems and technology areas. These areas include systems administration, operating systems, web applications, network vulnerabilities, and vulnerabilities in IoT devices. Coding skills often required include C, C++, Java, PHP, Perl, Ruby, and Python. AI solutions are sometimes applied to detect and respond to cyber attacks.

A relatively new area that has grown in popularity is user experience (UX) design, intended to optimize dashboards and other interfaces presented to business users. Skills related to the gathering of business needs and the creation of wireframes and prototypes that align with business requirements are fundamental in this role. It is a role that will likely be required for as long as humans interface with computers and devices.

Augmented and mixed reality provides an immersive experience through the wearing of computer processing-powered intelligent eyewear and presents another means of interacting with data and the world around us. Skills especially useful here include 3D modeling; knowledge of languages such as C++, C#, and JavaScript; and the ability to apply geometric algorithms.

Newer technologies just gaining widespread adoption or on the horizon, such as blockchain and quantum computing, need programmers who possess the ability to understand new paradigms and who can work with the new programming languages associated with these technologies. Blockchain varieties based on public or private protocols are used to define immutable records that are widely distributed in a ledger-like fashion. Valid new transactions and records are established through consensus, so developers of these applications sometimes need skills in areas such as game theory. Emerging open source blockchain frameworks, such as Coco, promise greater blockchain scalability and performance than was possible earlier.

Potential quantum computing use cases are not yet fully understood. Some algorithms have been designed to take advantage of quantum bits (qubits) that can exist in superposition in these computers, enabling the algorithms to run much faster than is possible using today's binary computers. New languages, such as Q#, were being introduced for use with quantum computers as this book was being written.

The technology areas just described were once believed to be very exotic and far into the future during earlier stages in my career. The programming languages, device capabilities, and tools did not exist. As the technology matured, it began to gain a foothold when previously unsolvable and difficult business problems could be solved. When such solutions gain acceptance, the demand escalates for new skills with which we might be unfamiliar.

Despite the opportunities that exist for those with deep technical skills today and optimistic projections that people possessing such skills will continue to be in demand, there are also trends that could negate the demand for some of these skills. For example, Software as a Service (SaaS) applications deployed as cloud offerings greatly decrease the development, deployment, and support effort needed. An increasing array of such offerings will replace many of today's legacy applications. That said, there will likely continue to be a need for applications customization and for integration of data exchanges between SaaS applications.

Applying AI to data integration and software development projects could impact the demand for programming skills and platform administration. Today, AI is already used in the cleansing of very large data sets and for some low-level programming tasks. It has been proven that AI can help guide developers by detecting potential software bugs before code is fully tested or deployed. As previously noted, AI is also used in the detection of cybersecurity threats. AI will likely automate many more repetitive programming and administration tasks in the future.

Seeing and understanding the impact of such emerging trends and adjusting your focus and skills development accordingly will be fundamental to continued success in your career. As technological change accelerates, the need for new and different kinds of skills will accelerate and become more acute. Companies will likely find themselves needing to cast a wider net to find such skills.

Growing Your Technical Skills

As time passes, you likely notice a growing skills mismatch between your existing technical skills and the skills required to design, develop, deploy, and maintain many of the more exciting emerging technologies. If you are currently working in a technology-related role and your company is pursuing some of these projects, you could have the advantage of possessing an insider's view. In forward-thinking companies, there can be many opportunities to build new skills and achieve associated technical certifications when tackling the right projects.

If you desire a transition to such projects, you need to develop your own career plan. Not all managers are great at assisting in this. Begin by taking an inventory of your skills.

You should then determine the gap between your skills and the skills possessed by others working on projects that you desire to be part of. Figure out how to develop those skills, then build them. Once you have acquired the skills, prove that you possess them either through certifications or in combination with one-off projects that you might build on your own. To create the time to do this, I have seen some particularly inventive individuals automate some of their repetitive day-to-day tasks to free up their schedules.

Faced with major technical skills deficits, some individuals choose to apply the talents and technical skills that they do have in new roles. Some transition into less technical jobs and become project managers, product managers, or managers of technical teams. These can also be extremely rewarding career paths where lessons learned previously in primarily technical hands-on roles can be applied.

Skills Always in Demand

Some skills that you might consider to be “soft skills” are always in demand. These skills require human interaction and can be the key to your long-term career success.

Your communications skills differentiate you. An ability to listen to the business needs of stakeholders and clarify what they mean can make all the difference in whether you pursue projects that go nowhere versus those that gain solid backing. You need precision in your listening, talking, and presentations. You must gather and convey just the right amount of information that is relevant to the audience at hand.

For example, the best data scientists and applications developers that I know have skills beyond simple knowledge of an array of algorithms or programming languages. They are great at listening for requirements from their stakeholders and explaining the solutions they develop in ways the stakeholders can grasp. They also are adept at listening for suggested changes that would make the solution better.

One of the ways I have found useful for honing these skills is through teaching and mentoring. Such activities can provide you with experience in anticipating questions, keeping discussions on-track, and exploring areas you might not have considered yourself. I always feel energized when I teach students at universities who are new to their fields of study or are about to apply those studies to the real world. More recently, I have noticed significant improvement in their abilities to interact with me in the classroom (and I have also witnessed an increase in the diversity of the students).

Writing skills are also important. Once again, one needs to be precise and convey just the right amount of information needed by the audience that you are writing for. My own writing experience began by writing short summaries of findings, whitepapers, and articles for technical publications. Later, I moved on to authoring books to address technology areas that I felt needed further explanation.

You will also gain another important benefit if you pursue teaching or writing. You will find that you must know the material at a greater depth to accurately convey fundamental knowledge in explanations and to respond to questions from those seeking more detail. This often leads to a need for further study and research. Developing skills in research is applicable in your daily work when you want to build upon the work of others. Such skills can help immensely if you want to put yourself on the road to becoming an expert in a topic.

Your ability to advance in your career will be partly due to your personality traits. Functioning well within a team by contributing in a collaborative fashion can help your reputation immensely. Showing empathy for others also strengthens your role in the organization and might differentiate you from other equally technically skilled people.

A Changing Mix of Skills

Some technology-oriented roles have begun a transition to becoming more business-focused. Because of that, the emphasis on technical skills versus business skills is changing. Handling this mix can be tricky as some companies are following a path where job requirements are more heavily tilted in a technical direction, while others are more aimed toward business savvy.

Often, the mix required depends on the organization where the job is located. If the job reports into line of business management, it is sometimes assumed that the technically skilled individual will be teamed with business sponsors who will jointly drive development. If the individual works in a technical organization such as IT, more proactive engagement to gather business requirements might be required and the technically skilled individual could spend a significant amount of their time reaching across organizations.

One role where I have seen a changing mix of technical and business skills is that of the Enterprise Architect (EA). Enterprise architecture is defined as a blending of business architecture, application architecture, data architecture, and technology architecture. The architects have traditionally been part of the Information Technology organization. Until recently, EAs have been most skilled in technology architecture and data architecture.

A typical mix of skills possessed by most EAs today is represented in Figure 5-2.

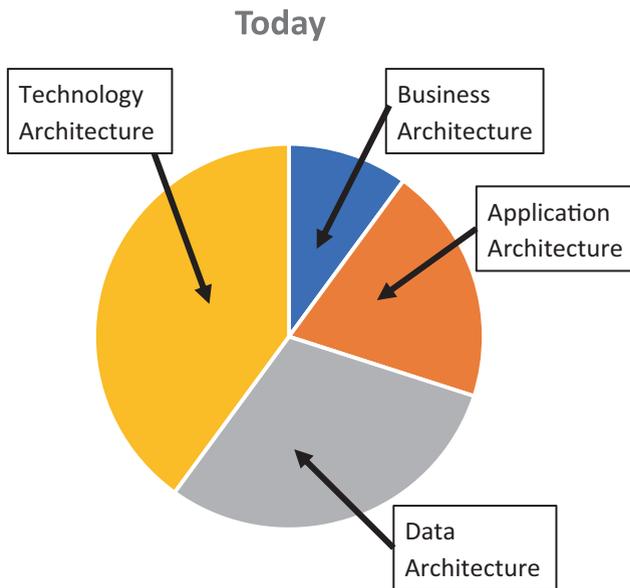


Figure 5-2. *Today's EA skills mix*

With the increasing importance of SaaS and other cloud-based solutions, the role is changing. The role is now shifting toward more focus on advising on business architecture and application architecture. So, many EAs will need to build more skills in those areas to fulfill future needs.

Figure 5-3 illustrates how I believe that the mix of skills for EAs could look in the future.

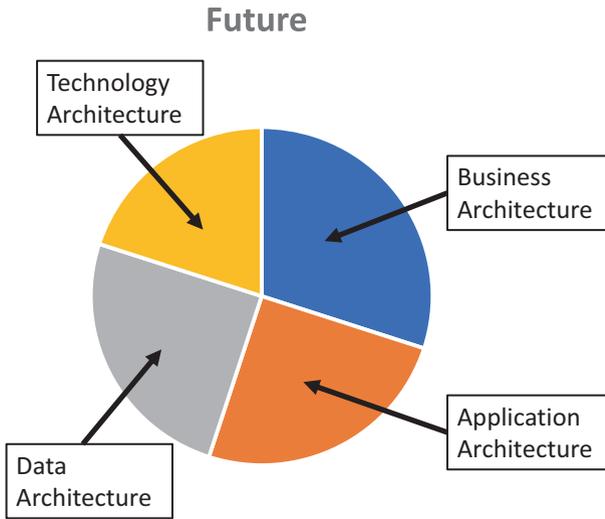


Figure 5-3. *Future EA skills mix*

Many other roles that bridge the technology and business worlds appear to be following in this direction. Individuals who can align technology development and implementation discussions with business needs and solutions will be particularly valuable in the future. Their insight and the value that they provide to the business will be well recognized.

Summary

By now, you probably well understand that the skills that you will need will change throughout your career. Some current roles and jobs titles will lose their relevance, while new roles and job titles will appear in the transition to cloud computing, the widespread application of AI, and the introduction of technologies such as blockchain and quantum computing.

I have observed that some of the most demotivated people in technology roles are those who find themselves stuck on legacy projects while others get to work on the “fun” stuff. I believe that many of these people who believe that they are being relegated to less challenging work mostly have themselves to blame. Rather than waiting for a return to the ways that things once were, an honest self-assessment is needed regarding skills and personal motivation. Then action should be taken by the individual accordingly.

It is my belief that you can either lead change or be its victim. In the next chapter, we continue to drive this point home as we describe how you can own your future.

CHAPTER 6

How to Own Your Future

You might find the title of this chapter hard to believe. There is an avalanche of emerging and changing technologies. Your skills are aging. Some companies are exhibiting little loyalty to long-time employees. Experts are discussing how artificial intelligence will displace many jobs.

How can you own your future in today's world? This chapter aims to give you guidance on how to do this by building upon the techniques that we described in previous chapters.

Here, we'll discuss techniques often used in brand management and apply them to career planning, career management, and personal promotion. We also provide tips regarding hiring and interviewing for new jobs. Alternatively, you might decide it is time to go out on your own, so we discuss what you should consider before becoming an independent consultant. Finally, we describe how you can apply all that you have learned to help you take control of your future.

Thus, this chapter contains the following sections:

- Assessing and improving your brand
- Promoting your brand
- The hiring and interview process
- Starting out on your own
- Taking control

I have observed that many people in technical roles are reluctant to step back and take the time to do an honest self-assessment and then promote their own qualities, capabilities, and skills. I first became aware of the importance of doing so several years ago. I believe that such efforts made a significant difference in enabling me to pursue the interesting opportunities and roles that I have been fortunate to engage in during my career. So, we begin this chapter discussing how to do this.

Assessing and Improving Your Brand

We briefly touched on the importance of career development earlier in this book. Here, we'll look at career development from the standpoint of judging and managing the value of your brand.

The idea that we have a brand image was brought home to me as I began to think about the power of LinkedIn and other social media in providing a first impression of who a person is. There, I have seen others effectively promoting their differentiated experiences, accomplishments, and skills. They present them in such a way as to tell a story aligned with their personal goals.

Most assessments of a brand begin with an in-depth look at the current state of the brand. For you, that should include an assessment of your skills and knowledge, personality, values, interests, and ability to deliver impactful solutions that meet or exceed expectations.

Your interests include job responsibilities that truly excite you along with the technologies and skills that are required to accomplish the job. To help yourself clarify what you want to accomplish in your next job, you might go so far as to write a personal mission statement stating a vision of your future self.

As you research personally desirable jobs, you will want to consider the likely future demand for such jobs. After all, you don't want to invest time in pursuing a job that is likely to disappear. You should note the skills and other qualifications required and will then be ready to perform a gap analysis between what you currently bring to the table and the requirements needed to land the job that you are aiming for.

Also, you should evaluate the alignment of those jobs with your personal life and family goals, including places where you would like to live, the amount of travel that might be required, and the work-life balance present. Such alignment or misalignment with your personal goals should impact your level of interest.

If you aim high enough for your next role, you will likely find significant gaps between what your current brand image portrays and what it needs to evolve to for you be seriously considered. You will then need to figure out a series of steps to improve your brand. Short-term steps might include a rewrite of your online profile and resume. Longer-term steps might include the development of new skills and the fine-tuning of existing skills.

Some use a SWOT analysis that documents their strengths, weaknesses, opportunities, and threats. The SWOT technique dates back over 50 years and is frequently used to analyze products, companies, and organizations, as well as people. When using a SWOT analysis to define yourself and your ambitions, the strengths and weaknesses identified are your own while opportunities and threats refer to external positive and negative trends and possibilities that you face.

Figure 6-1 illustrates some of the information you will want to record in your personal SWOT:



Figure 6-1. *Personal SWOT analysis*

You might have previously associated career planning only with developing your technical skills. However, your personality and reputation are also part of your brand. For example, are you open to criticism? How do you respond when questioned? Do you mentor and share best practices with others? Do you take on leadership roles when required to get the job done? Have you built a track record of success that you can point to and that others will vouch for? If the answers to these types of questions is frequently “no,” then you will likely need to develop in these areas as well.

If you intend to move into a leadership position that involves technology, some areas of your personality will likely require a more strenuous assessment. For example, your ability to lead innovation should include an assessment of your openness to ideas and perspectives from others, your willingness to take calculated risks and quickly recover from failures, your ability to act in a decisive manner and appear confident when doing so, and your ability to maintain optimism in the face of problems.

As you implement your development and branding plan, you should continue to gather intelligence about the skills and qualifications that you need for your ideal future job. You might do this by interviewing for similar jobs that appear to be currently beyond your reach. Though you might fail to land such a job prematurely, you will nevertheless find out where you fall short and can focus your personal improvement efforts there.

This likely sounds like a lot of work beyond normal career development. But I have found that individuals either believe that they are continuously competing for a better career or they don't. Those who have a competitive spirit will continually look for ways to improve themselves and for better ways to do things. They continually fine-tune their personal plan for career development, making it more comprehensive than their company's guidance or the plans that others put together, because they understand its importance.

Promoting Your Brand

When doing a search using a popular search engine, what do you find in the search results about yourself? Do you primarily find links that take you to your posts on LinkedIn and other social media sites? Can you find other links to work-related experiences that would impress an employer prospecting for new employees?

For example, have you published works or commentary that demonstrate your expertise, and do links to these works appear in your search? Do you appear to be someone who frequently speaks at technology conferences? Is it apparent that you have demonstrated your experience in diverse roles and to diverse organizations?

Now, let's explore your LinkedIn profile in more depth. LinkedIn is the first impression many recruiters, human resources departments, and job interviewers gain of you. Your profile should present you as an accomplished individual with a unique combination of skills relevant to the kinds of jobs that you seek.

How unique is the story that you present in your profile? Does it convey that you have demonstrated lengthy periods of success in your various roles or does it appear that you have moved from job to job before success (or failure) was clearly established? Are the skills you applied in your various roles clearly documented along your career path? Have others endorsed you by calling out specific skills and the value you provided while highlighting some of the unique aspects of what you have to offer?

Does your personality and passion show through in your LinkedIn profile? For example, have you shared best practices in the form of articles that you've posted? Do you have examples of teaching or mentoring others? Are the work-related activities you like to engage in clearly indicated?

An older style of resume can also prove to be important in attracting the right attention of human resources departments and recruiters. While some companies allow you to import your LinkedIn profile into an online resume format, others require submission of a resume as a formal document and sometimes also request a cover letter. When this is a requirement, you have an opportunity to customize both the resume and cover letter to highlight why you are particularly qualified for the job to which you are applying.

You should ask yourself this question when applying for a job or a new role: if you only have the LinkedIn profile or resume by which to judge yourself, would you hire yourself or would you search for other candidates? If you are underwhelmed by your own profile or resume, you should determine what is missing. Work on filling in missing pieces if it is simply a matter of documentation and references. Develop a plan to cover other gaps through personal development if you don't have the right experience, skills, and other qualifications.

The Hiring and Interview Process

I have frequently been involved in the hiring and interview processes for prospective employees. I have provided input to other hiring managers and have also been the hiring manager for teams that I lead. Of course, I've also been interviewed myself for many jobs and promotions.

These experiences have been invaluable when I have sought career movement for myself. You should welcome the opportunity to engage in this process whenever you get the chance. Many people that I know keep their interview skills sharp by periodically interviewing with other companies and organizations, even when they are not seriously looking to make a career move.

The hiring process at most organizations begins with a job advertisement written by the hiring manager in collaboration with human resources. Human resources and recruiters often sort through an avalanche of responses from potential incoming candidates. They look for candidates with the necessary skills, but some candidates will usually stand out from others based on additional skills and work-related experiences that they possess.

At this point in the process, previously established networks can come in handy. Many times, people inside an organization or a company that I was interested in moving to and who were familiar with my past contributions to their success made sure that I made it to the next stage in the hiring process.

As part of the initial screening, salary ranges and some of the benefits of working in the organization are often discussed. Then, the hiring manager will usually have a discussion with the candidate over the phone. If sufficiently impressed, they often arrange phone or in-person interviews with people in their organization who are working in similar roles, including with senior team members.

A day of in-person interviews often follows. Where presentation skills are deemed critical, a presentation might be scheduled that will be delivered by the candidate during that day. A mixed group of managers and team members will serve as the audience, asking questions along the way.

Following the day of in-person activities, interviewers and those who attended the presentation compare notes. They critique the candidates, rank them, and offer their opinion on hiring any of the candidates.

Figure 6-2 illustrates these steps commonly used in the hiring process:



Figure 6-2. *Steps in the hiring process*

Obviously, the interviews are a key step in this process. When I am going to interview a candidate, I begin by exploring their resume and their LinkedIn profile a day or two before I talk to them. I look for areas where their background aligns with job requirements and make note of areas that I want to explore.

I am more impressed with the candidate if I find that the candidate has looked at my profile prior to a pre-arranged interview. This indicates that they are a person who does their homework. I also expect the candidate

to have investigated my company in their preparation for the interview. These are steps that I also personally take when I prepare to be interviewed at a prospective employer.

I've worked at companies that seek to hire multidimensional individuals possessing both technical and soft skills. Hence, the interviews of candidates for technical roles often focus on gaining an understanding of the individual in these major areas:

- Validating their understanding of the role
- Understanding their ability to solve problems
- Testing their effectiveness as a communicator and their ability to listen
- Validating that they possess needed technical skills
- Determining the maturity of the candidate

The interviews often follow this pattern, with some variation as to the order. The amount of time spent in each area depends on the focus that the hiring manager places on each. Some hiring managers will direct certain interviewers to focus on just one or two of these areas. Much can be learned during this interview sequence that might not always be apparent to the candidate.

For example, I will often ask a candidate if they understand their potential role in the job for which they are interviewing, especially if I haven't talked to the candidate previously. I like for them to respond by saying that they always welcome multiple perspectives and want to hear my version of what is required in the role. That indicates that they have a mature understanding of how to gather information and gain the true picture of a situation.

When exploring their ability to solve problems, I'll often ask them how they gain an understanding of business needs, link technology solutions to those needs, and prioritize their activities. I will sometimes want to learn about how they have dealt with situations where technologies that the stakeholders require don't align to their skills or how they have solved particularly difficult problems in the past.

Judging verbal communications is possible even if the candidate is being interviewed via phone or web conferencing. I seek to determine their enthusiasm, ability to clearly articulate ideas, and whether they take time to pause for questions, listen to responses, and ask probing questions of their own.

Proof of written skills can be illustrated by exhibits that the candidate provides in the form of technical documents, articles, or whitepapers that they have written. A mock presentation can expose their ability to diagram solutions and deliver a cohesive story in front of a live audience.

I've found that technical skills are often best evaluated by team members working in similar roles. The goal is to understand whether the candidate has a depth of knowledge beyond buzzwords, getting into some detail as to how real solutions are defined, designed, and built.

The maturity of the candidate can be determined by how they respond to the interview process. The most mature candidates usually show an ability to think on their feet and are highly adaptive. They will often talk about sharing their knowledge with others and serving as mentors. They are not afraid to turn the interview session into a collaborative discussion where they ask as many questions as the interviewer. At the end of the interview, they might ask qualifying questions to determine if they are going to be offered the job.

Many soft skills, as well as technical skills, will become apparent. The candidate's personality will often shine through. Sometimes, they will demonstrate a sense of humor or a genuine interest in learning more when questioned during discussions and mock presentations. I usually gain an

initial understanding as to how well they will fit into the team that they are being hired to join.

The companies with whom I interview to explore new positions are usually looking for similar skills and traits that I seek in job candidates. Seeing how outstanding candidates performed in interviews that I conducted and comparing them to those who failed to impress me and others provides me with best practices that I can apply to myself. I am always looking for an edge.

While I always recognize that an interview requires give and take, I also find that if I am interviewed poorly, I come away with a negative view of the company interviewing me. I then begin to question whether I would be happy working there.

Starting Out on Your Own

A career option that many skilled in technology consider is to operate independently as a paid consultant. The decision to become an independent consultant should not be taken lightly. There are many additional skills and job requirements needed to be successful.

The technical skills and experience that you wish to be paid for as a consultant must be in demand. Ideally, you possess unique technical skills that can fill the knowledge gaps in clients, as these can drive higher billing rates. Once you are in this role, you should continually assess the demand for your technical skills and develop new skills in accordance with client needs.

You must become highly skilled at scoping engagements, putting the scope in writing, and then enforcing the agreements. You need to choose your clients wisely, looking for clients who see these engagements as partnerships built on mutual trust. Since you are directly accountable for on-time deliverables, any scope creep can be particularly painful. Regardless, you will often find yourself working long hours to fulfill your obligations.

You will also be responsible for aspects of the business that others perform if you currently work for a larger company. Marketing and building relationships and a pipeline for future business is your responsibility. Setting your billing rate, and then billing and collecting the money that is owed to you, is also something that you need to deal with.

Many individuals that I have worked with and who have successfully made this transition began working as independent consultants in a second part-time job while they were employees in larger companies. They used the second job to understand the new responsibilities they would need to undertake and to understand their likely cash flow when they left their primary job.

Others became consultants when faced with layoffs or other job reductions at the companies they were employed by. Quickly developing a business plan for making the transition is critical to success if you believe that this scenario could be in your future.

Taking Control

You will not own your future until you take control. Throughout this book, we provided guidance on how to further your career. Of course, you must now apply these techniques.

We began our guidance in Chapter 1 by describing situations that you should avoid. These included roles where you have little opportunity for technical skills development, are disconnected from the business, lack opportunities for experimentation in creating solutions, or find yourself in a place where there is little emphasis on career development.

We then described the impact of company and organizational cultures on your career in Chapter 2. In an innovation-driven culture, you will have the greatest opportunity to develop leading-edge solutions and apply newer technologies. Process-driven cultures managed as hierarchies can present very limited opportunities for you to reinvent your career and drive

change. This is especially true if senior management believes that they must provide all direction.

In more dynamic companies, several cultures will likely be present. So, we also described the importance of possessing a growth mindset so that you can react to, anticipate, and embrace changes that you will need to deal with.

In Chapter 3, we described how the political landscape of your company or organization also impacts your ability to get things done and to drive change. Where political savvy is essential, your ability to network with others who are politically influential within your current organization or company can impact further success in your career. By focusing on growing your extended network into other organizations and companies, you will widen available options when you seek your next career move.

Next in Chapter 4, we explained the importance of diversity. It can provide you with new perspectives and help you grow as a person and avoid bias. We also described techniques used in creating and managing diverse teams and the impact diversity will have on how decisions are made. Your experience working in diverse teams and organizations can be very helpful when you seek a new job at a company that understands and values it.

We then described in Chapter 5 the kinds of skills that will be important in furthering your career and how to anticipate what will be needed. In this chapter, we described assessing and improving your “brand,” best practices in hiring and interviewing for jobs, and considerations for starting out on your own as an independent consultant.

To own your future, you can't wait for your company or organization to change. In each of the chapters in this book, we described a means to take appropriate action. If you feel held back or frustrated, there will always be alternatives and organizations looking for your talents and experience if you have properly managed your career with an eye on the future.

You own it. Now is the time to do something about it.

Summary

We end this book in a time of rapid and far-reaching change, similar to the period I encountered when my career began and at certain points as it progressed. As the invention of new technologies and creation of new jobs and the disappearance of many old technologies and jobs accelerates, I believe that the lessons that I shared in this book will grow in importance to you.

I know that the roles that you will pursue will change over the many years of your career. The values and skills that you possess today and that you develop along your career path will be more relevant in some situations than others. Some of the relevance will depend on who you work for and the business and technical needs of those companies and organizations at any given time.

You possess limited resources to deal with the changes that you will encounter. Of the limited resources that you must deal with, the allocation of your personal time is probably the most limited. You must use that limited time to develop and execute your career development plan and manage the other things that are important in your life.

Use your time wisely. Invest it to pursue goals that align with your passion, where you see an opportunity for personal growth and reward, and where you can leave behind something meaningful when your career comes to its conclusion.

I hope that my experiences and the lessons learned that I shared in this book will help you to create a plan to do that. My goal in writing this book was to help you further your career success (as you define it) in some small way.

Best wishes for continued success in your future.

APPENDIX

Suggested Resources for Further Reading

I recommend the following resources for further exploration of many of the topics and views of experts I mentioned in this book.

Printed Books and Articles

The Arbinger Institute. *Leadership and Self-Deception*. Oakland, CA: Berrett-Koehler Publishers, 2010.

The Arbinger Institute. *The Outward Mindset: Seeing Beyond Ourselves*. Oakland, CA: Berrett-Koehler Publishers, 2016.

Bossidy, Larry, and Ram Charan. *Execution*. New York, NY: Crown Business, 2002.

Buytendijk, Frank. *Performance Leadership*. New York, NY: McGraw-Hill, 2009.

Cameron, Kim, and Robert Quinn. *Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework*. Hoboken, NJ: John Wiley & Sons (Jossey-Bass), 2011.

Carroll, Pete. *Win Forever*. New York, NY: Portfolio/Penguin Group, 2010.

Dixon, Matthew, and Brent Adamson. *The Challenger Sale*. New York, NY: Portfolio/Penguin Group, 2011.

APPENDIX SUGGESTED RESOURCES FOR FURTHER READING

Dweck, Carol. *Mindset*. New York, NY: Ballantine Books, 2006.

Grove, Andrew. *Only the Paranoid Survive*. New York, NY: Currency Doubleday, 1996.

Harvard Business Review. *HBR Guide to Project Management*. Boston, MA: Harvard Business Review Press, 2012.

Hunt, Vivian, and Sara Prince, Sundiatu Dixon-Fyle, and Lareina Yee. *Delivering through Diversity*. McKinsey, January 2018.

Kahneman, Daniel. *Thinking, Fast and Slow*. New York, NY: Farrar, Straus and Giroux, 2011.

Khalsa, Mahan. *Let's Get Real or Let's Not Play*. Salt Lake City, UT: White Water Press (Franklin Covey), 1999.

Kim, W. Chan, and Renee Mauborgne. *Blue Ocean Strategy*. Boston, MA: Harvard Business School Press, 2005.

Lencioni, Patrick. *Overcoming the Five Dysfunctions of a Team*. San Francisco, CA: John Wiley & Sons (Jossey-Bass), 2005.

Military Leadership Diversity Commission. *Effective Diversity Leadership*. Arlington, VA: April 2010.

Miller, Robert, and Stephen Heiman. *Strategic Selling*. New York, NY: William Morrow and Company, 1985.

Moore, Geoffrey A. *Living on the Fault Line*. New York, NY: HarperCollins, 2000.

Nadella, Satya. *Hit Refresh*. New York, NY: HarperCollins, 2017.

Nath, Shyam, and Robert Stackowiak, and Carla Romano. *Architecting the Industrial Internet*. Birmingham, UK: Packt Publishing, 2017.

Phillips, Joseph. *IT Project Management*. New York, NY: McGraw-Hill, 2010.

Rath, Tom. *Strengths Finder 2.0*. New York, NY: Gallup Press, 2007.

Schwab, Klaus. *The Fourth Industrial Revolution*. Geneva, Switzerland: World Economic Forum, 2016.

Stackowiak, Robert, and Art Licht, Venu Mantha, and Louis Nagode. *Big Data and the Internet of Things*. New York, NY: Apress, 2015.

Surowiecki, James. *The Wisdom of Crowds*. New York, NY: Anchor House (Random Books), 2005.

Wooden, John, and Steve Jamison. *Wooden on Leadership: How to Create a Winning Organization*. New York, NY: McGraw-Hill, 2005.

World Economic Forum. *Eight Futures of Work, Scenarios and their Implications*. Geneva, Switzerland: World Economic Forum, January 2018.

World Economic Forum. *Towards a Reskilling Revolution, A Future of Jobs for All*. Geneva, Switzerland: World Economic Forum, January 2018.

Websites

A Step-by-Step Plan to Starting a Consulting Business (McCord, July 17, 2003) <https://www.techrepublic.com/article/a-step-by-step-plan-to-starting-a-consulting-business/>

Avanade: Microsoft Teams Supercharges Collaboration for Millennials to Boomers. (Wilén, November 2, 2016) <http://blog.avanade.com/avanade-insights/collaboration>

Brand: You. Creating and Self-Marketing Yourself to Find a Job During Tough Times. (Warzel, March 7, 2011) <http://www.businessinsider.com/brand-you-creating-and-self-marketing-yourself-to-find-a-job-during-tough-times-2011-3>

Cloud Transition Reins in IT Budgets Worldwide. (Computer Economics, January 2018) <https://www.computereconomics.com/article.cfm?id=2474>

Corporate Politics, Its Negative Effects and How to Overcome the Challenges (Mazumdar, July 13, 2017) <https://pompimazumdar.wordpress.com/2017/07/13/corporate-politics-its-negative-effects-and-how-to-overcome-the-challenges/>

Does Business Agility Depend on Company Culture? (Forbes, July 12, 2016) <https://www.forbes.com/sites/danielnewman/2016/07/12/does-business-agility-depend-on-company-culture/>

APPENDIX SUGGESTED RESOURCES FOR FURTHER READING

Enterprise Architects in a Cloud World. (Stackowiak, December 15, 2016) <https://www.linkedin.com/pulse/enterprise-architects-cloud-world-robert-stackowiak/>

Five Tips for Building a Killer Consulting Business. (Steinberg, August 2, 2012) <https://www.inc.com/scott-steinberg/how-to-build-a-consulting-business.html>

Forbes: Six Simple Decision-Making Metrics to Kill Bad Meetings and Emails. (Larson blog, January 25, 2017) <http://www.cloverpop.com>

How Diversity Makes Us Smarter. (Phillips, October 1, 2014) <https://www.scientificamerican.com/article/how-diversity-makes-us-smarter/>

How Technology Companies Evolve. (Stackowiak, March 10, 2017) <https://www.linkedin.com/pulse/how-technology-companies-evolve-robert-stackowiak/>

Let's Innovate! (or Not). (Stackowiak, January 19, 2017) <https://www.linkedin.com/pulse/lets-innovate-robert-stackowiak/>

Office Politics: Must You Play? A Handbook for Survival / Success. (Conner, April 14, 2013) <https://www.forbes.com/sites/cherylsnappconner/2013/04/14/office-politics-must-you-play-a-handbook-for-survivalsuccess/>

Organizational Culture Assessment Instrument. <https://www.ocai-online.com>

Sharing my Technology Career Lessons. (Stackowiak, February 13, 2017) <https://www.linkedin.com/pulse/sharing-my-technology-career-lessons-robert-stackowiak/>

Strengths Finder. <https://www.gallupstrengthscenter.com>

The Brand Called You. (Peters, August 31, 1997) <https://www.fastcompany.com/28905/brand-called-you>

Three Best Practices for High Performance Decision-Making Teams (Larson, March 23, 2017) <https://www.forbes.com/sites/eriklarson/2017/03/23/3-best-practices-for-high-performance-decision-making-teams/>

Twelve Signs You Have an Entrepreneurial Mindset. (Turner, March 10, 2015) <https://www.entrepreneur.com/article/243054>

Ubisoft is using AI to Catch Bugs in Games before Devs Make Them. (Kamen, March 5, 2018) <http://www.wired.co.uk/article/ubisoft-commit-assist-ai>

What is TOGAF? An enterprise architecture methodology for business. (White, January 29, 2018) <https://www.cio.com/article/3251707/methodology-frameworks/what-is-togaf-an-enterprise-architecture-methodology-for-business.html>

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