



“An insider’s guide to translating the creative techniques of jazz to the business world.”

—Scott Berkun, author of *The Myths of Innovation*

the **Jazz** Process

**COLLABORATION,
INNOVATION,
AND AGILITY**



ADRIAN CHO

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Library of Congress Cataloging-in-Publication Data

Cho, Adrian.

The jazz process : collaboration, innovation, and agility / Adrian Cho.

p. cm.

Includes index.

ISBN-13: 978-0-321-63645-4 (pbk. : alk. paper)

ISBN-10: 0-321-63645-7 (pbk. : alk. paper) 1. Teams in the workplace. 2. Diversity in the workplace. 3. Organizational effectiveness. 4. Communication. I. Title.

HD66.C467 2010

658.4'022—dc22

2010010507

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501 Boylston Street, Suite 900

Boston, MA 02116

Fax (617) 671 3447

ISBN-13: 978-0-321-63645-4

ISBN-10: 0-321-63645-7

Text printed in the United States on recycled paper at Courier in Stoughton, Massachusetts.

First printing June 2010

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Foreword

Group dynamics are an integral part of our daily work and private lives, whether we're driving a car and dealing with commuter traffic, working through computer code with a team of programmers, running a business, or performing with a jazz group on a concert stage. In *The Jazz Process*, Adrian Cho explains how high-performance experts from varied disciplines use certain underlying truths to reach agreements, solve complicated problems, and negotiate unexpected hurdles. The best teams do this on the fly, in real time, and in such a way that an uninformed observer might never notice the skill, dedication, and magic involved.

The 14 fundamental principles found in this book are essential to any collaborative venture. Following his own advice, Cho offers “just enough” description and analysis to make practical application of the principles easy and flexible. *The Jazz Process* provides a thorough diagnosis of top performance—how teams function, how stellar results are achieved, and how people can effectively work together on just about any project imaginable.

In my work and play as a musician, I can relate every principle here to my daily practice sessions, rehearsals, and performances. Cho's ideas about teamwork, trust, roles, and responsibilities can be applied to music and arts, as well as any other activity in which a high level of performance can translate to success.

When I perform with a group of jazz musicians, we are like a basketball team, passing the ball back and forth, waiting for the right moment to sink a basket. We are a business concern, and our business is jazz. Our work is not unlike a military squad on a secret mission or a group of politicians debating social issues and reaching agreements. I bring a complex combination of skill, preparedness, and intuition to every performance situation. By understanding the goal of a musical project and being keenly attuned to the other musicians, I help the group achieve the highest possible artistic success—or the most efficient “*return on time and energy invested*,” as Cho writes.

Music performance is all about agreement and teamwork. Successful performing musicians adhere to self-evident truths ingrained by countless hours of practice and performance. The agreements between experienced musicians are often unspoken, even when they appear and sound seamless.

I play many concerts where there is a clearly defined structure to the music—there are specific notes to be played in a certain way with a certain sound, rhythmic feeling, and interpretation. However, some of my favorite musical experiences involve freely improvised situations—a minimum of rules, a bare-bones structure, with more possibility for risks and rewards. When playing freely, there are still agreements. In improvised music, the structure might not be as formal as the detailed parts of written arrangements, but the balance between freedom and responsibility remains a common denominator.

Cho describes the concept of using “just enough rules.” As applied to music, this means the right rules in the right amount, with the freedom to creatively break rules if the need arises. Musicians playing various styles must understand the rules, their individual roles, and the best team approach for a good outcome.

Whether playing in a highly structured situation or in a freer atmosphere, the best musicians strive toward one goal when they pick up their instruments: musical success. At first look and listen, the goal seems simple—the players should make no mistakes, and they should elicit a satisfying reaction from the audience. The basic task of playing a piece and having the audience applaud belies the complexity of the interaction between musicians as they perform.

Great musicians, like successful business people and top athletes, constantly balance individual contributions and elegant teamwork. The gems of individual performance are almost worthless without the team framework. In a jazz band, trust and respect among the musicians are indispensable. Deep listening and a passion for the task at hand are equally important.

Legendary jazz bassist Ron Carter once spoke to me about his work with drummer Tony Williams in the Miles Davis Quintet of the ‘60s, saying, *“The hook-up with Tony happened right away, from the first time we played. When we started developing the music rhythmically and harmonically, I trusted my judgment. If I said this was the top of the tune, that’s where they took it to be. I just trusted that it was going to go where it was going to go. I was one person they would trust to play the top of the form or show where the top of the tune was. That’s something I could always do, whatever was going on. They trusted that when I played one, if that wasn’t their one, they would get to it on the next time around.”*

Carter repeatedly refers to the element of trust between musicians. Team trust in a jazz group begins when a player offers something musically, and it's completed when another player supports that idea. Carter's experience verifies Cho's concept of "leading on demand." The best team players know instinctively when to lead or follow.

The basic performance principles that Cho describes transfer to diverse fields. In the business world, companies thrive or die by the use or abuse of these tenets. Sports teams win or lose games. Software developers invent the next big thing—or not.

"Companies all too often wonder why their employees are not more committed to their work, when, in fact, they should be asking themselves what they can do to achieve a higher level of commitment from their employees," writes Cho. I've found that a bandleader, soloist, or even an ensemble player known as an ace can inspire others to give more to a performance. Cho's premise of employing top talent increases the return on investment in any situation.

The level of commitment in a musical ensemble is palpable from the moment the musicians unpack their instruments. Miles Davis famously said he could tell if someone was a good player by *"His carriage...first. His carriage of the instrument. You can tell whether he plays or not by the way he carries his instrument, whether it means something to him or not."* [from "The Man with the Horn," interview by Cheryl McCall, *Musician Magazine*, 1982].

Davis appears regularly throughout *The Jazz Process* because he was a great musician and an even greater bandleader. He was an enigmatic and abrasive character, but his bands always seemed to give 110%, providing us with some of the best recordings in the history of jazz. Davis's groups were always at the forefront of musical developments, and the friction that they created defined new directions in music.

Friction is a force to understand and manage. Cho compares friction in business, sports, war, technology, and music. Bad friction can paralyze a group, lose a game, bankrupt the company, and send an army running in retreat. Good friction in the right amount is necessary for any activity to work well. Good friction makes the jazz band swing, cranks up the heat at a basketball game, and provides just the right level of competition to maintain a thriving economy.

Form, tempo, pulse, and groove are other elements that Cho describes as essential to the success of a team. When I moved to New York City in 1980 to pursue a career as a jazz musician, I often attended Monday night workshops

with pianist Barry Harris. A master of the bebop style of jazz piano, Harris demanded a strict adherence to bebop jazz vocabulary—the melodies, rhythms, and stylistic nuances that make bebop sound unique. By mastering the vocabulary, students could successfully negotiate the structure and form of standard jazz songs.

Without strict attention to the basic underlying form, there is no freedom in the music. Tension and release in music occur when a player masters and controls the elements of form and stylistic vocabulary. To pass muster with Harris, we had to know the vocabulary, form, and have the right momentum when we played—the swing element, tempo, pulse, and rhythmic forward motion.

In a clever description of strategic approaches to warfare, basketball, business, and software development, Cho outlines the importance of form, tempo, pulse, and groove. Describing the optimal groove in a goal-oriented software development team, he shows how an organization can swing. The desire to maintain tempo and momentum that is so ingrained in a jazz musician's psyche is also the very thing that can lead a company to creatively reach goals on time. Business, bebop style.

In *The Jazz Process*, Cho lays out a clear path to achieving elegant teamwork, goal-oriented project completion, and winning results. Whatever your line of work or pleasure might be, I hope your team finds their groove.

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Cologne, Germany, March 2010

Preface

“Art is the desire of a man to express himself, to record the reactions of his personality to the world he lives in.”

—Amy Lowell, nineteenth-century American poet

About This Book

This book is an artistic expression that captures some of my personal thoughts about the world in which we work and play. Although I didn't write this book with a thematic approach in mind, three themes emerged from the text in support of the concepts you'll find herein. Their presence is no surprise, as they are principles I value and have come to rely on over the years.

The first of these themes is **diversity**. I feel fortunate to have been exposed to a degree of diversity throughout my life. From a cultural perspective, I was born in Australia, where I spent the first 30 years of my life. My mother is Chinese, and my father was most likely Australian, although I can't be certain. In primary (elementary) school, I was the only child of Asian descent in a student body of approximately 600 students. Back then, Australia was less racially diverse than it is today. My reaction to the way other children treated me was to reject my Chinese ancestry. Fortunately, my attitude changed as I grew up, and I began to embrace the differences that come with diversity and to realize how those differences have enriched my life. In 2000, I moved to Ottawa, Canada, where I live with my wife, Deborah, an American Lutheran pastor. We live on the rural outskirts of Ottawa and share our home with a large family of cats and dogs. Career-wise, my interests have always been many and varied, but arts and technology were particularly important to me since an early age. I could never decide between the two and eventually developed parallel careers in the software industry and in music. I've long been fascinated by diversity in teams. In the arts, I am always looking for ways to bring together artists from multiple genres or disciplines. I like to form musical ensembles that include both classical and jazz musicians and perform works that span genres and challenge both musicians and audiences. I also like to stage productions that bring together artists

from a variety of disciplines, including visual artists, actors, dancers, and musicians. In business, I enjoy the dynamics of cross-functional teams, and I'm often trying to find ways to integrate multiple disciplines.

Unification is another strong current in this book. It comes from the belief that although people are all different, many ties bind us together. More specifically, although we all work and play in a wide variety of domains, certain principles are universally applicable. We all deal collectively with many of the same fundamental problems; only our contexts differ. Jazz musicians must constantly collaborate, innovate, and manage change, and they have to do so in real time. The same is true of a basketball team, a squad of soldiers, and a team in business. Although it's natural to look toward fellow disciples when seeking solutions to the problems we encounter in our work, I've found that some of the best inspiration can come from people working in completely different disciplines. In this book, you'll find examples of excellence drawn not only from software development and music, but also from business, military operations, and sports. You'll also find the application of laws from the disciplines of sociology, psychology, physics, biology, and systems theory.

The final theme that plays out in this book is that of **execution**. I am always concerned by the glut of leadership, strategy and management education, and the dearth of focus on execution. It's not simply that there are so many more words and minutes given to the former, and it has nothing to do with management versus those who work in the trenches. One person's strategy is another person's execution. Middle management executes the strategy set by upper management. Even the most senior people in an organization execute on behalf of a board, and they in turn are answerable to shareholders. The problem is that many leaders do not give enough respect or consideration to the realities of executing strategies defined in isolation. The result is usually failure that leads to finger-pointing all around. The strategies that are most likely to succeed are those created collaboratively with input from all stakeholders. Execution is another one of those universally applicable principles that must permeate an organization at all levels so that it moves in concert like a symphony orchestra. Successful artistic leaders who help deliver great performances with minimal planning and rehearsal understand and/or give due consideration to execution. In jazz, ensembles often execute with no plan or rehearsal whatsoever.

Reading This Book

The Jazz Process provides a framework for improving collaboration, innovation, and agility by offering a method for execution and 14 best principles that act on that method. Many books begin with an overview and then drill down into the details, a kind of “top-down” approach. In contrast, I’ve chosen a linear approach, resulting in a more natural progression for discussing the subject matter, somewhat akin to telling a story. Consequently, you won’t see the big picture until we’ve laid a foundation by discussing five principles for working. If you just can’t wait and you would like to see a high-level view right now, take a peek at the listing of the principles of the jazz process in the figure on page 85 and the execution cycle illustrated in the figure on page 98 in the “The Essentials of Execution” section in Part II.

As a domain-agnostic view of the way in which high-performance teams succeed in the face of challenges, the *Jazz Process* is inherently abstract. To put it to work, you must translate its method for execution and its principles into concrete practices that work specifically for your team and its activities. You’ll find many concrete examples to help you do that throughout this book. As you read through this book, you’ll find it beneficial to ask yourself how you can put the *Jazz Process* to work for you. You can find out more about the *Jazz Process* and even participate in discussions at www.jazzprocess.com.

Introduction

Collaboration

Collaboration is the act of working together. The ability to collaborate with others is one of the most important skills a person can possess. No matter how inventive, creative, or productive you might be, as one person alone, you can achieve only so much.

The state of our planet would be radically different if we human beings did not possess the ability to collaborate. Forced labor is one of the oldest and crudest forms of collaboration, albeit one that is managed by duress. The Great Wall of China was built by millions of people, including soldiers, criminals, common people, and even children. Some estimates suggest that as many as three million people may have died as a result of the harsh working conditions they endured during the building of the wall. By comparison, the work force that built the great Egyptian pyramids was substantially smaller. It may have been as few as 20,000 to 30,000 workers strong, and possibly only a small proportion of that force may have been slaves. Regardless of the actual numbers, what's clear is that both the Egyptian pyramid builders and the Chinese wall builders were great organizers of labor. On a much smaller scale, our earliest ancestors would have cooperated to hunt and to protect themselves from predators. These accomplishments would not have been possible without our ability to work together.

The skills of collaboration are not unique to humans. Think about a pack of wolves hunting a moose, a colony of beavers building and maintaining a dam, or a group of humpback whales trapping fish in an amazing, innovative bubble net. Collaboration is present almost everywhere in our lives, both past and present, as well as in the world around us. Our natural tendency to work with others is so great that we have developed methods of mass collaboration, aided by technology, that enable us to harness the combined forces of multiple minds distributed across the planet. Projects such as the online encyclopedia Wikipedia are sustained by contributions from people across the globe. Open source software, powering most of the Internet servers

across the planet and becoming ever more widely used, is built and maintained in much the same way.

The benefits of collaboration are obvious. By applying more people to a task, you can reduce the time taken to complete that task. This assumes that multiple people can undertake the task simultaneously. Collaboration is sometimes a necessity because some problems are so large or difficult that they are impossible to solve without a team. The larger stones in the pyramids at Giza are thought to weigh as much as two tons. Even with the aid of the pulley lifting machines employed by the pyramid builders, one person alone could not have moved even one of these stones. The combined efforts of multiple individuals, however, could move them.

A very simplistic theory of collaboration would conclude that if a team of one person can perform one unit of work within a set period, increasing the size of the team would, theoretically, produce proportionally more work in the same amount of time. In other words, ten people could produce ten units of work.

In reality, collaboration involves overhead that results in less work being produced than might be expected. For example, ten people might be able to produce the equivalent of only eight units of work in the time that one person could produce one unit of work. Figure I.1 illustrates this. Collaborative overhead increases as the size of a team increases, and at some stage, the law of diminishing returns leads one to conclude that it doesn't make sense to add any more people to a problem. One of the most obvious sources of collaborative overhead is **friction**. This is one of the many concepts we discuss in the pages that follow.

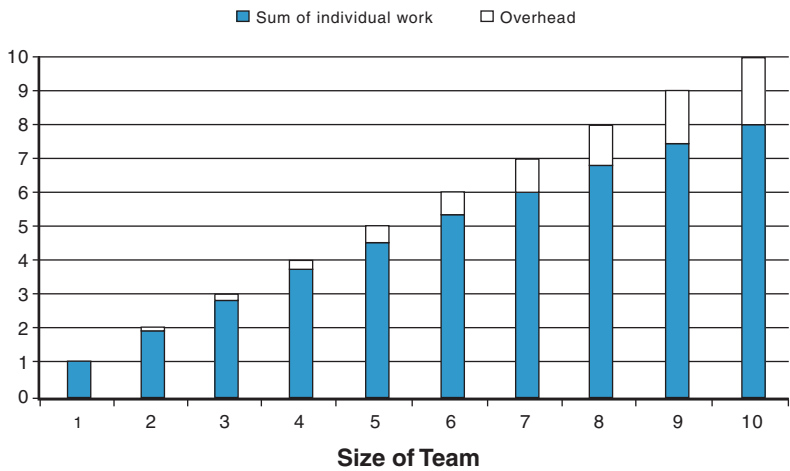


Figure I.1 Cost of collaboration

Synergy

In contrast to the overhead of collaboration is the principle of **synergy**, in which the combined efforts of many can be collectively greater than the sum of their individual efforts. This means that if we apply X number of people to a given task, we could theoretically accomplish *more than* X units of work within the same period of time. Figure I.2 illustrates the benefit of synergy combined with the overhead of collaborating. The benefit of synergy can partially or completely offset the overhead of collaboration.

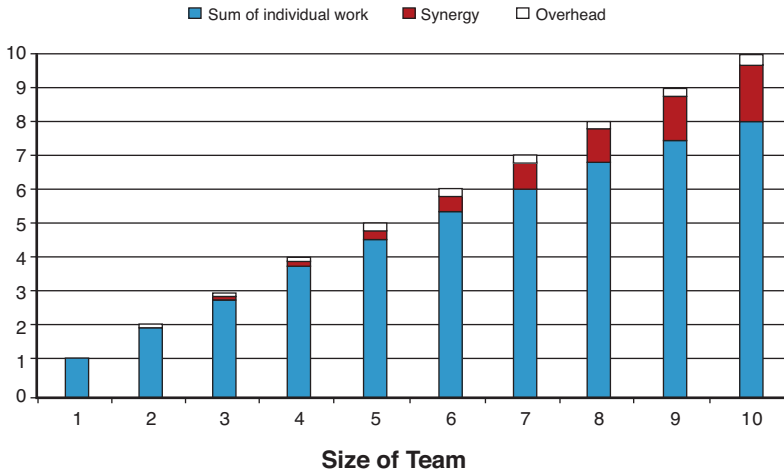


Figure I.2 *Benefit of synergy*

Synergy plays an important role in the political domain, where the outcome of an electoral or legislative decision depends on a total number of votes. Individual politicians might not draw enough votes to win a decision, but by forming alliances, they can aggregate votes and achieve their goals together. Many political partnerships—in fact, some of the most surprising and odd partnerships—have resulted from such a need. In the 2008 U.S. Presidential election, Republican John McCain chose Sarah Palin as his running mate, with the idea that she would inject energy and excitement into his campaign and win votes from the conservative, youth, and women’s groups that McCain was having difficulty courting. Barack Obama chose Joe Biden for his foreign policy experience, seniority, and familiarity to long-time voters. These political examples demonstrate that synergy is often present when people combine complementary skills. Synergy is more likely to occur when the size of a team is limited, and a team is more likely to be effective when its composition is multidisciplinary or cross-functional.

In the U.S. Army, a Special Forces Operational Detachment Alpha (ODA), or “A-team,” consists of 12 soldiers. The team is led by a commander and a second-in-command, and the remaining ten positions are filled by an Operations Sergeant, an Assistant Operations and Intelligence Sergeant, and pairs of Weapons, Engineering, Medical, and Communications Sergeants. This doubling-up affords redundancy in case of personnel loss and allows the team to divide into smaller squads. Even with such duplication of skills, an A-team has a great deal of individual expertise. In comparison, regular army squads tend to have less individual expertise. A nine-soldier rifle squad consists of a squad leader and two fire teams, each with a team leader, one rifleman, one automatic rifleman, and a grenadier. Special Operations Forces (SOF) units such as those employed by the U.S. Army’s Green Berets and Army Rangers, the Navy SEALs, Delta Force, and “hunter-killer” teams, whose very existence is classified, may be required to operate deep in enemy territory with limited or no support. In many cases, the government may deny their mission, or even their existence, if they are captured. They have a very real need to be as self-reliant as possible.

On a basketball team, each member plays a particular position and fulfills specific functions. The point guard is the team leader and often calls and sets up the plays. The shooting guard makes the long shots and often guards the opposing team’s best player. The small forward scores near the basket and looks for rebounds and steals. The power forward, often the biggest and strongest player on the team, controls the space near the basket and is a key element in defense. The center, who is usually the tallest player, leverages his or her height when scoring, blocking shots, and grabbing rebounds.

In a jazz trio, each musician plays a specific role. The classic jazz trio includes piano, double bass (sometimes called acoustic bass, string bass, upright bass, or simply bass), and drums. Another common configuration is that of a drummer-less group employing a horn (such as a saxophone or trumpet), guitar or piano, and bass. In a piano trio, the piano plays a dual role as both the lead melodic instrument and the *comping* (short for *accompanying*) instrument that plays chordal harmony. The traditional role of the bass is to play the foundation of that harmony using roots of the chords. The primary role of the drums is to delineate the time and the groove. In the horn-guitar/piano-bass trio, the horn is the lead instrument, the guitar or piano comps, and the bass fulfills both its traditional role and that of the primary time-keeper.

A basketball team with only five players and a jazz trio with only three musicians have the same critical need for self-reliance as a Special Forces

team. They both rely on a cross-functional approach to deliver the greatest performance possible with limited resources. Synergy is a natural outcome when each member of these teams plays to his or her strengths and successfully combines talents with those of the other ensemble members.

Performing

Synergy is present when any ensemble or company of artists gives a great performance. In an orchestra, the combined result of all the musicians and a conductor performing together is greater than the sum of all the individual participants working alone. Think about the powerful impact of a great orchestra performance, and then think what it would be like to hear each individual musician play his or her part in isolation from the rest. Each musician would play the same notes, whether playing individually or simultaneously, but the impact to listeners is much greater when the musicians perform together.

As in high-performance business teams, artistic ensembles are staffed with passionate and committed practitioners. They must leverage collective individual contributions if they are to deliver a performance (product) that will attract and retain customers. Their performances must be delivered on time with close to zero defects. This must be accomplished in real time while the ensemble is subjected to continuous scrutiny.

If a theater company is scheduled to present a performance, it can't just decide one day that it's not ready and postpone the performance when tickets have already been sold. As they say, "The show must go on." Timeliness of delivery is critical in many other jobs. Consider, for example, the clergy person who must be at worship each week to lead a service and deliver a sermon. Think about the tax accountant who must submit accurate and complete tax returns in time, to avoid costly penalty fees.

High-quality production of goods and services seems like an obvious goal. But just how good does the resulting product have to be? Let's say 99.9 percent is good enough. A large artistic ensemble, such as an orchestra, may have 100 musicians who each play 1,000 notes in the course of a performance. That's 100,000 total notes the ensemble plays. If only 99.9 percent of those notes are good, there are still 100 bad notes that could mar an otherwise perfect concert or recording take. The United States Postal Service delivered 667 million pieces of mail each day in 2008. If 99.9 percent was good enough, the USPS would have lost 667,000 packages daily!

Artistic performers must not only deliver their performance on time, but they must also deliver it in real time. A company of ballet dancers can't just stop in the middle of a performance to make a decision at its leisure. The same is true for a jazz ensemble, as well as for the driver of a fully loaded gas tanker who must suddenly decide what action to take to avoid an unexpected traffic obstruction.

Regardless of your line of work, thinking about your job as a series of performances offers advantages. Your personal goal should be to give the best individual performance you can while ensuring that your team gives the best collective performance it can. Figure I.3 illustrates an operating framework for collaborative performance. In this framework, the team concurrently executes in all four of the quadrants so that they are simultaneously contributing as individuals, working together as a cohesive unit, delivering a high-quality performance on time, and creating a unique offering. The central box is a special one that represents the team's efforts being maintained from one performance to another.

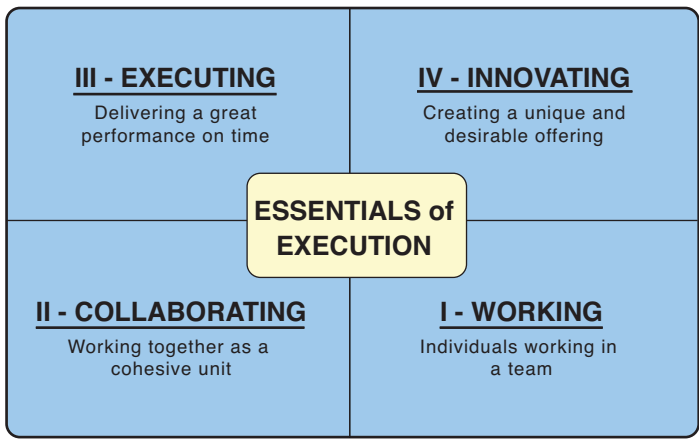


Figure I.3 *Operating framework for collaborative performance*

Learning from Jazz Performance

When jazz musicians perform, they create a unique style of music while confronting an equally unique set of challenges. They do not simply deliver a prepared product, but they must continuously create that product in the moment. In the movie *The Universal Mind of Bill Evans* (Carvell 1966), pianist Bill Evans says:

Jazz as we tend to look at it is a style, but I feel that jazz is not so much a style as a process of making music. It's the process of making one minute's music in one minute's time, whereas when you compose, you can make one minute's music and take three months to compose one minute's music.

Each jazz performance must be unique and innovative, and because the creative process occurs in real time, the musicians must constantly adapt to unpredictable changes. Even if they have never worked together, a group of skilled jazz musicians can collectively face these challenges and go on to deliver one great performance after another. As in any multidisciplinary team, they do this by collectively integrating strong individual contributions from passionate and committed practitioners. In addition, they overcome their unique challenges and ensure success by employing best principles such as passionately committing themselves to the task at hand, following a set of simple rules that affords them autonomy but ensures that the music making doesn't simply degenerate into chaotic noise, acting transparently at all times, constantly listening and communicating, and taking measured risks.

Jazz can serve as an inspiration and example for anyone seeking to improve the skills of leadership, teamwork, innovation, and communication in today's knowledge-based economy. Although jazz musicians have been practicing the art of jazz performance for a hundred years, only about a decade ago did business management theorists begin to realize the relevance of jazz to their own discipline. The following words are often attributed to Warren Bennis, business professor and internationally acclaimed expert on management and leadership:

I used to think that running an organization was equivalent to conducting a symphony orchestra. But I don't think that's quite it; it's more like jazz. There is more improvisation. Someone once wrote that the sound of surprise is jazz, and if there's any one thing that we must try to get used to in this world, it's surprise and the unexpected. In this world of chaos, there's no other way of doing things. Truly, we are living in a world where the only thing that's constant is change.

In August 1996, management guru Peter Drucker was quoted as follows in *The Relentless Contrarian* (Schwartz and Kelly 1996):

The model for management that we have right now is the opera. The conductor of an opera has a very large number of different groups that he has to pull together. The soloists, the chorus, the ballet, the

orchestra, all have to come together—but they have a common score. What we are increasingly talking about today are diversified groups that have to write the score while they perform.

What you need now is a good jazz group.

In 1997, John Kao, former Harvard Business School professor and jazz pianist, published his book *Jamming: The Art and Discipline of Business Creativity* (Kao 1997). In later years, R. Keith Sawyer, a professor of psychology and education and also a jazz pianist, identified business and jazz connections as well.

When drawing analogies between jazz and business, people tend to focus on improvisation in jazz as a metaphor for innovation in business. This is an overly simplistic approach, as improvisation and innovation are not the same, and jazz musicians actually do both. To **innovate** is to create something new or unique. In a nonmusical context, to **improvise** is to make do or develop a solution to a problem with whatever time and resources you have available. As Evans points out, jazz musicians don't play every note from prepared music. They decide what notes to play when the performance is already underway. Often each note is chosen only milliseconds before it is sounded. Described by some people as "making it up as you go along," it is this process of real-time composition on which many people tend to focus in their attempts to describe the unique qualities of jazz. They miss two important points: First, the ability to compose in real time is based on years of training and experience. It's not as simple as choosing random notes in the spur of the moment. Second, and more important, although they may choose specific notes in the moment, the greater goal of a jazz musician is to create something unique. In other words, the musician aims to *innovate*. This quest for individual self-expression is most noticeable when a jazz musician performs an improvised solo in which he or she is featured and for which jazz audiences often applaud. In small-group jazz, the musicians are constantly innovating throughout a performance. When a pianist or guitarist comps a chordal accompaniment or a bassist walks a bass line, he or she is also creating something unique. The quest for innovation is balanced against the need to fulfill specific responsibilities, such as supporting the other musicians. With each musician continuously innovating, any jazz performance is sure to be unique. In fact, try as they might, jazz musicians rarely can successfully re-create a previous performance note for note.

Because most jazz performances are group efforts, it stands to reason that collective and simultaneous innovation is the genre's most notable feature.

In their paper *Jazz as a process of organizational innovation* (Bastien and Hostager 2001), David Bastien and Todd Hostager wrote:

First, jazz is self-consciously spontaneous, creative, and expressive. It is fundamentally concerned with inventiveness as an expected mode of thought and behavior. Second, jazz is most typically a social process, involving a group of inventive musicians. Jazz enables individual musicians to coordinate the innovation process so that they achieve a credible and aesthetically pleasing collective outcome. The jazz process is built on the assumption that each individual musician is simultaneously and consciously adapting to the whole, supporting the other players, and mutually influencing the outcome. Jazz is thus a truly collective approach to the entire process of innovation, for it requires that the invention, adoption, and implementation of new musical ideas by individual musicians occurs within the context of a shared awareness of the group performance as it unfolds over time.

This collective and simultaneous innovation introduces substantial change and the potential for instability during the course of a jazz performance. Bastien and Hostager also observed this:

As a collective approach to the process of innovation, jazz specifies a turbulent task environment for individual musicians, a complex field for interaction in which individuals are simultaneously required to invent new musical ideas and to adapt their playing to that of the collectivity. Turbulence in this environment not only results from the dynamic process of individual invention; turbulence also arises from the dynamic process of coordinating invention. Moreover, these dynamic processes are not independent of one another. The invention of musical ideas affects and is affected by the adoption and implementation of musical ideas. The inherent turbulence in this jazz process produces uncertainty for performers insofar as each musician cannot fully predict the behavior of the other musicians or, for that matter, the behavior of the collectivity.

This turbulence may require the musicians to improvise in order to deal with the unexpected. For example:

- The pianist may make a series of chord substitutions, replacing some of the expected chords with others that fit into the musical form but give it a different sound. The substitutions may be subtle enough that they fit with what the bassist intended to play. Or they may be more dramatic substitutions that require the bassist

to complete the effect by outlining the alternative harmony. Such chord substitutions may, in turn, inspire the lead instrument to alter the melodic line. Such momentary deviations from an expected harmonic path can introduce tension, complexity, and interest in the music. Rarely charted ahead of time, they simply occur in the moment at the initiative of one musician, leaving others to improvise in response.

- A jazz band may perform a slow ballad, creating a mood of intensity and soulfulness. To take the music to a different place, the bassist may urge the band to shift into a “double-time feel” groove in which the tempo of the music appears to double. In actual fact, the navigation through the chord changes and the musical form continues at the same rate. The illusion is created by essentially doubling the number of notes played within a given space of time. For example, the bassist plays eight notes in the period where he or she would have played four notes. The other musicians must respond in kind. At some point, the band will likely shift back to the original slower groove. To prolong the double-time feel beyond a certain point only weakens the effect. The transition back to the original groove may be initiated by the bassist or by another musician.

These are just two examples of how jazz musicians are constantly improvising in response to changes in the music. It’s important that they stay together, but equally important that they initiate forays into new territory to help create a unique and innovative performance. Improvisation in jazz may even come in response to one’s own initiative. For example, in the course of attempting to craft a particularly innovative statement, a musician may fail to execute or may even lose his or her place in the musical form. The musician must then improvise a recovery, which may require participation of other musicians. They may, for example, play a musical fill or provide a clear musical sign to help the lost musician get back on track.

The skill of improvisation should be as highly prized in business as it is in jazz. More than ever, teams and organizations must be able to respond to the unexpected. Companies that can’t react quickly may come under threat from even the least likely of competitors. In 1996, Larry Page and Sergey Brin, two Stanford University Ph.D. students, began work on a project nicknamed BackRub. Its purpose was to explore the mathematical properties of the World Wide Web, including the relationships between linked pages. Few would have predicted that such a project would develop into the force that is

Harmony in Jazz

Most music contains a harmonic element. Harmony is the sounding of multiple notes simultaneously. In music, harmonic structures are described by chords. These may be explicitly stated by an instrument capable of playing more than one sound at a time, such as a guitar or piano, or by multiple instruments working together, each sounding one note. Chords can also be implied by outlining them with just one note at a time or playing melodic passages that suggest the chords. Despite the general use of the term *harmony*, chords may not always sound harmonious. Many chords actually sound discordant and create tension in the music that can be resolved harmonically by transitioning to more concordant harmony.

Jazz harmony is typically more complex than classical harmony. Classical chords typically contain three or four notes while jazz chords may often have seven or eight notes, although they may not all be used in every instance. In a jazz ensemble, and especially in a small group, an important relationship exists between the bass and comping instrument, such as a guitar or piano. The bass outlines the harmony but tends to emphasize the roots or foundations of the chords, whereas the comping instrument intentionally avoids those roots, playing rootless chord voicings, giving the bassist the freedom to fulfill his or her role.

Most pieces of music contain a series of chord changes. Jazz musicians refer to these simply as changes. Certain chords or acceptable substitutions are expected at certain points in the music. To stay on the same page, all the musicians must play the changes, although they may each do so in different ways, depending on their instruments and their roles in the ensemble.

now Google. It took archrival Microsoft seven years to approach the then-fledgling company about a possible partnership or merger. By that time, Google had already been profitable for two years and was discussing a possible initial public offering (IPO) that would take place the following year. Who could have foreseen that Encyclopedia Britannica, first published in 1768, would be threatened almost 250 years later by Wikipedia, an online body of knowledge maintained by volunteers?

Jazz is not the only style of music in which improvisation plays an important role. As Derek Bailey points out in his book *Improvisation—Its Nature and Practice in Music* (Bailey 1992), improvisation is present in Indian, African, Turkish, and Polynesian music, as well as in baroque (especially organ), flamenco, rock, and blues. Vocal improvisation can be heard in myriad venues, from Presbyterian chapels to marketplaces in Cairo. The most extraordinary thing about the way jazz musicians perform is not that they improvise, but

that they collaborate, lead, and execute with agility. The social practices and project management principles jazz musicians use have much to offer the world of business.

Not only business teams, however, are learning from jazz musicians. Many people may not be familiar with the intricacies of jazz performance, but they've probably witnessed countless sporting events in which improvisation, collaboration, and agility helped a team secure a victory. Great athletes have been doing this for years in team sports such as soccer, hockey, and basketball, but people have only recently identified parallels between the athletic and musical domains. In February 2009, the University of British Columbia hosted "Power Play: Improvisation and Sport," a previously unprecedented forum that convened athletes, artists, and researchers to discuss the thread of improvisation that weaves together the artistic and the athletic. Such a broad discussion on the subject may have occurred for the first time only recently, but at least one person has long known about the connection. Kareem Abdul-Jabbar, widely considered one of the greatest basketball players of all time, is also a big jazz fan. Abdul-Jabbar's father was a police officer and a jazz musician. Consequently, Abdul-Jabbar became a devout follower of the genre. He blogs about both basketball and jazz, and he wrote extensively on the topic in his must-read book *On the Shoulders of Giants: My Journey Through the Harlem Renaissance* (Simon & Schuster 2007).

It's not difficult to see how a basketball team can be likened to a swinging jazz quintet. Jazz journalist Larry Blumenfeld said in the article *Links Between Basketball and Jazz Run Deep* (Blumenfeld 2008):

Anyone with knowledge of both basketball and jazz recognizes natural affinities between the two pursuits: a marriage of form and improvisation, of individualism with teamwork; a primacy of rhythm (watch how basketball players dribble the ball before taking foul shots to re-establish a sense of tempo); and a requirement that players respond to one another's choices and to rapidly changing situations in real time.

In the Internet newspaper *The Huffington Post* (2007), R. Keith Sawyer wrote this:

[T]he five members of a basketball team interact in an interdependent way that's a lot like jazz. You see this especially in pick-up games, because everything that slows down the professional game has been taken away—there are no free throws in streetball, for example.

In basketball and in jazz, each player's action has an immediate effect on what can happen next. From second to second, the team's performance emerges from a chain reaction of individual acts. So much of what makes jazz great is the unique chemistry among individual players; there's no way that you could simply add up the quality of the bassist, drummer, pianist, and sax player, and predict what their group would sound like. Basketball players interact in a fluid, rapidly unfolding manner, and that's the way the most innovative businesses work today.

Scaling the Jazz Process

When I speak to audiences about the Jazz Process, I sometimes begin with three exercises.

First, I perform jazz as a trio with two other musicians.

Second, I ask ten volunteers from the audience to move silently in a straight line from one location to another and then return to their original position. Before the exercise begins, they are told the rules of engagement to which they must conform throughout the activity:

- Maintain a straight-line formation
- Face their heads and bodies forward
- Refrain from any verbal or nonverbal communication
- Execute all turns to the right (clockwise)
- Complete the exercise within 60 seconds

Third, I have the entire audience, which may be several hundred people, perform as a chorus by reading a given text together out loud.

I call these “exercises in music, dance, and theater,” respectively. One of my goals in these impromptu performances is to demonstrate degrees of innovation or improvisation relative to the size of a team. As the size of the team increases in these exercises, the level of innovation decreases, as shown in Figure I.4. The jazz trio, for instance, is constantly improvising. In the dance exercise, the larger group of participants must conform to the rules, but they can vary their speed and even stop moving. Some room for self-expression exists, but not much. What about the even larger-scale theater exercise? If you've ever recited part of the liturgy as a member of a congregation during

a worship service, then you’ve performed this exercise and you know that once the group begins to recite together, it is very hard to avoid conforming. Unless you simply refrain from participating, you must read along with the group. The size of the group makes it difficult to express yourself individually without appearing to be obviously nonconforming.

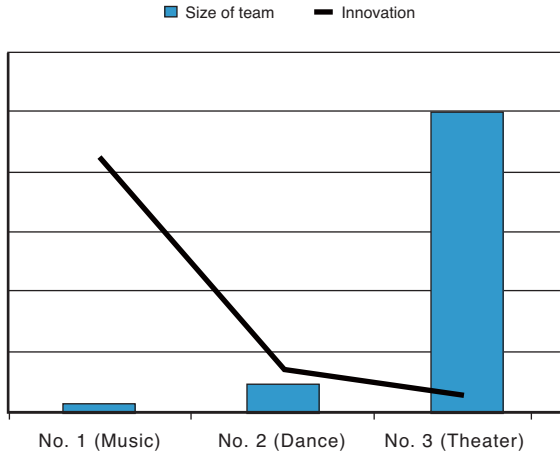


Figure I.4 Innovation related to size of team for three different activities

In the Drucker *Wired* article (Schwartz and Kelly 1996) I referenced earlier, I included only a subset of what he actually said. Consider now, the complete version of his words:

The model for management that we have right now is the opera. The conductor of an opera has a very large number of different groups that he has to pull together. The soloists, the chorus, the ballet, the orchestra, all have to come together—but they have a common score. What we are increasingly talking about today are diversified groups that have to write the score while they perform.

What you need now is a good jazz group. And if you want to have a really good jazz group, how large can it be? How large can it be when you have people who improvise on their own and the group realizes that the trumpet player is now playing his solo and everybody needs to stop and support him.⁹ You can use seven to nine people—maximum. If you get more, you have to score.

So how can you have a big company or a very big organization when you have to develop the score as you go along? Today you build different teams. Sounds beautiful. Yet nobody has really found a way to do it.

Drucker recognized that although a jazz band may be a good model for teams, the model may not necessarily scale. His critique certainly has some basis. After all, a typical jazz orchestra has no more than 18 members, and in that format, a lot of the music is scripted or precomposed. Most of the musicians, except perhaps the rhythm section (piano, guitar, bass, drums), have specific written parts, and only certain musicians get to improvise a solo as a feature for specific sections of a piece. This is typical of the music performed by orchestras or big bands of artists such as Benny Goodman or Duke Ellington. In some cases, even the individual solos were not improvised. When a piece was recorded, musicians would improvise in the recording studio. At live performances, fans would often demand to hear the solos performed exactly as on the record. This was especially true when people attended events primarily to dance and not just to listen. The irony is that, to do this, a musician would have to go back and listen to the recording and transcribe to paper or memory the exact notes that had been improvised in the studio.

Jazz groups in which all the musicians are improvising for almost the entire performance typically have no more than seven members, and quite often less. The basic configuration consists of a rhythm section (usually piano, bass, drums) and one or more lead instruments, such as saxophones, trumpets, trombones, and so on. This is small-group jazz typical of bands led by Louis Armstrong, Charlie Parker, Miles Davis, John Coltrane, Charles Mingus, Thelonious Monk, and countless other famous and lesser-known jazz musicians.

There are some exceptions, where larger groups of up to 20 musicians are mostly improvising, but they are typically performing a specific class of large-ensemble **free jazz**, and they are definitely a rarity. Examples include Michael Mantler's Jazz Composer's Orchestra from the late 1960s, William Parker's Little Huey Creative Music Orchestra, and the aptly named Instant Composers Pool (ICP) Orchestra. What's notable about free jazz, whether performed by large ensembles or smaller groups, is that the musicians perform with a great deal of musical freedom, adhering to only a minimal set of musical rules. These are rules that relate to musical elements such as melody, harmony, rhythm, form, dynamics, and so forth. It's analogous to abstract painting, in which an artist has the freedom to draw the observer away from conventional reality-based imagery. In the same way, free jazz musicians are free to draw listeners away from conventional melodies,

harmonies, and so forth. However, if the musicians are seeking to produce a truly collaborative creative product that can attract and retain a wide audience, they must heed the rules of engagement, such as those described in this book, even more so than musicians playing more traditional jazz styles. If they fail to do this, their musical product can easily degenerate into meaningless, self-indulgent creativity that is of interest to only a very limited audience.

These descriptions of three basic styles of jazz—big band, small group, and free—demonstrate that not all jazz ensembles produce the same kind of music. Nor do they all use precisely the same performance process. Similarly, not all business teams produce the same kind of product or service, and their work processes also differ. Every situation is different, and each team has to do what makes the most sense for it at a specific point in time. Some teams give greater priority to agility, some to inventiveness and creativity, and others to efficiency or return on time and energy invested.

In theory, a thousand jazz musicians could perform together and produce an innovative performance that would garner the interest and appreciation of audiences. Although that may be intriguing, it's not really practical. What is interesting is identifying the practices that allow jazz musicians to be successful and distilling these into principles that can then be applied to large teams. In many cases, technology can be an enabler. Wikipedia and open source software projects, and indeed the entire Internet itself, harness the combined efforts of thousands upon thousands of individuals. They work as distributed, virtual teams, coming together and disbanding as required, improvising and innovating with agility, and in many (but not all) cases, delivering high-quality offerings consistently on time. While they may not realize it, the way in which they work has much in common with the way in which jazz musicians perform.

In recent years, jazz has inspired IBM, the information technology giant that has existed as long as jazz itself. In 2003, the company began to use the concept of **jamming** to innovate with huge numbers of people. Using what the company calls Jam technology, IBM hosted intranet-based online discussions that engaged 50,000 employees over a period of three days. The goal of this very ambitious exercise was to rewrite the company's core values. By all accounts, it was a hugely successful undertaking. Today, IBM encourages all its employees to act by those values in everything they do for the company. IBM has since used the Jam technology and process to conduct many other large-scale exercises in collaborative creativity. In July and September 2006, IBM ran InnovationJam with more than 150,000 participants from 104 countries. The contributors to InnovationJam included IBM employees and

members of their families, universities, and IBM partners and customers. Conducted over two sessions, each lasting 72 hours, InnovationJam generated more than 46,000 ideas. In November 2006, IBM announced that it would invest \$100 million to develop the ten best of those ideas. The Jam technology proved to be so successful that, in 2007, IBM launched a service to run Jams for other organizations.

In 2008, IBM released Rational Team Concert, the first of its next-generation software-development tools powered by its Jazz team collaboration software. Jazz supports many principles of jazz performance in a software development context, and IBM has riffed on the jazz theme in its promotion of Jazz-based products with catchphrases such as “Develop software like a band plays jazz.” IBM’s Jazz-based products are designed to support the collaborative efforts of thousands of people.

Recapitulation

- Collaboration is the act of working together. The ability to collaborate with others is one of the most important skills a person can possess. No matter how inventive, creative, or productive you might be, as one person alone, you can achieve only so much.
- When a team has synergy, it can achieve more than each of its individual team members would if they each worked alone. Synergy is more likely to occur when the size of a team is limited, and a team is more likely to be effective when its composition is multidisciplined or cross-functional.
- Thinking about your job as a series of performances can be highly beneficial. Artistic ensembles must leverage collective individual contributions to deliver a performance (product) that will attract and retain customers. Their performances must be delivered on time with close to zero defects. This must be accomplished in real time while the ensemble is subjected to continuous scrutiny.
- Jazz can serve as an inspiration and example for anyone seeking to improve skills of leadership, teamwork, innovation, and communication in today’s knowledge-based economy. Jazz musicians constantly innovate and improvise in response to unexpected change.
- Companies such as IBM have demonstrated that the practices of jazz can be scaled up.

Maintain Momentum

*“It does not matter how slow you go,
so long as you do not stop.”*
—Confucius

Concepts of Momentum

Any system must expend resources to advance or move in a specific direction. Energy that a baseball pitcher transfers to a ball, fuel that a car consumes, and a team’s united intellectual efforts to solve a problem are all examples of expending resources in pursuit of a goal. When resistant forces such as friction are present, making progress is harder, and additional resources must be expended. The pitcher must exert more energy when throwing into a strong wind. If you add parts to a car’s exterior, such as a roof rack, or if you open one of the car’s windows, the vehicle’s wind resistance increases. If the car’s tires are underinflated, it increases their rolling resistance. Each form of resistance, also known as *drag*, increases fuel consumption. As we’ve learned, sources of friction in business, such as politics, excessive bureaucracy, lack of trust, poor communication, and frequent mistakes, all require people to spend more time and energy.

Momentum is the tendency or impetus to continue in a specific direction. When momentum is present, fewer resources need be consumed to advance. If you’re driving a car and you take your foot off the throttle, the vehicle’s momentum causes it to continue moving, despite various forms of friction. You must apply the brakes and create substantially more friction to slow the car more quickly. If velocity is a measure of how quickly a team is progressing, constructive momentum makes it easier to continue at a constant velocity—and also makes it easier to increase velocity. **Constructive momentum** can make it easier to establish positive feedback loops such as economies of scale that build on previous results to produce increasingly

greater future results. **Destructive momentum**, on the other hand, is negative progress. Repeated mistakes or problematic behavior can generate destructive momentum, fueling costly and dangerous negative feedback loops that waste precious time and resources. In our further discussions, references to momentum refer to constructive momentum unless otherwise noted.

In physics, momentum is calculated as the mass of an object multiplied by its velocity. A truck has greater mass than a car, but the car can have equal momentum to a truck if it is moving fast enough. This concept of momentum applies to teams as well. For any given velocity, a larger team or organization has more momentum than a smaller one. In theory, a smaller team can have equivalent momentum to a larger team if its velocity is high enough.

Getting started, or “getting the ball rolling,” to quote an often-used metaphor, can be one of the hardest things to do. **Critical mass** is a sociodynamic term for a state in which there is sufficient momentum to enable an activity to be self-sustaining. To reach this state, considerable resources may need to be expended, especially if resistance must be overcome. In social situations, this can happen when introducing a new idea, a new practice, or new people. People have resisted change for as long as humans have been able to establish routines that they can take comfort in. Comfort is largely the result of emotional connections that are established over time, and severing such connections can be difficult. In any transition, it’s important to acknowledge both the good and the bad about the things people are familiar with, while helping them connect with what they are being asked to adopt. In Chapter 8, “Act Transparently,” we identified how associations can help establish a perception of authenticity. Similarly, associations can help people establish connections with new ideas, practices, or people. Execution champions, used in large companies, are an example of employing such associations by having people act as advocates for something new. Their clout can often enable them to lubricate situations, easing the inevitable friction that can be generated in the course of a transition.

The single most important element of momentum is regularity. People are naturally drawn to the predictability of regular cycles. The “theater” exercise described in the Introduction is an example of how a group of people instinctively fall into a regular cadence when they read together, just as a church congregation does when reading liturgy. This is a manifestation of a physics concept known as **entrainment**, wherein two or more interacting oscillating systems fall into the same period. Momentum can be maintained

by managing four operational elements that leverage people's affinity for regular cycles: form, tempo, pulse, and groove. Let's look at each one in turn.

Form

Most activities that require committed efforts in the pursuit of specific goals are organized with some kind of form. This is true regardless of the duration of the activity. It could be a 10-minute jazz performance, a 3-hour hockey game, a 6-month software development project, an 18-month political campaign, or a 5-year military operation. Consider some examples of form:

- The minuet is an eighteenth-century dance that originated in France. The music of the minuet had a basic ABA form, meaning two different sections of music, with the A section played at the beginning and the end, and the B section between them. In practice, both sections often repeated with many variations. In turn, the minuet was often part of a larger work, such as a dance suite, which also contained other musical dance forms, such as the courante, allemande, gigue, Gavotte, and Bourrée.
- Many jazz songs are based on the AABA form, with 8 bars given to each section and 32 bars total. The B section is often referred to as a bridge. Examples of AABA tunes include “Take the ‘A’ Train,” by Billy Strayhorn; “Round Midnight,” by Thelonious Monk; and “So What,” by Miles Davis. Another common form is ABAC, used in George Gershwin’s “A Foggy Day” and Jerome Kern’s “My Romance.” Sections may not necessarily be eight bars in length. Gershwin’s “Summertime” is ABAC, with each section comprised of four bars. Kern’s “All The Things You Are” has an ABCD form with 8-8-8-12 bars, and “Stablemates,” by Benny Golson, is ABA with 14-8-14 bars. The entire song is repeated multiple times, with at least one iteration of the melody at the beginning, followed by multiple iterations for each improvised solo and at least another iteration of the melody at the end.
- A basketball game consists of four quarters. In the National Basketball Association, each quarter is 12 minutes long. Overtime periods are five minutes long. There’s a 15-minute break between the two halves; there’s 120 seconds between the first and second quarters, between the third and fourth quarters, and before overtime periods.

- In software development projects that use an agile methodology, iterations (or sprints) typically last from one to four weeks. In the Eclipse projects at eclipse.org and the Jazz projects at jazz.net, projects often have three to nine milestone iterations. The goal of each iteration is to produce a stable build of software that demonstrates new functionality or defect fixes. These are typically denoted as M1, M2, M3, and so on. During each iteration, tasks such as gathering requirements, designing, coding, verifying new functionality, and fixing defects may all be performed. At the end of the last milestone, a project usually declares a feature freeze and then enters a series of shorter test-and-fix iterations to improve quality and stability. These are typically referred to as release candidates because the goal is to produce a releasable product at the end of each iteration. They are typically denoted as RC1, RC2, and so on.
- The structure of a political, marketing, or military campaign typically includes the following phases:
 1. **Assessment**—Setting goals and evaluating conditions and restrictions.
 2. **Planning**—Defining specific objectives, scope, and cost, and allocating resources by staffing and equipping. In a political campaign, fund-raising may begin in this phase.
 3. **Execution**—Mobilizing resources and executing on specific objectives—for example: raising funds, connecting with voters, running advertisements, and carrying out orders. Throughout this phase, the results of the execution must be constantly monitored so that actions can be controlled and adjusted or cancelled, if necessary.
 4. **Conclusion**—Assessing the outcome of the campaign and cleaning up with specific tasks such as thanking donors, supporters, and volunteers; resolving any campaign debts; bringing home troops; and so on.

People use the predictability of form to help them set goals, time their deliveries, and shape their contributions. For example, a jazz musician who knows that he has 32 bars in which to improvise a solo may define a musical riff or motif, develop it with a climax, and then wind down the solo with an ending that assists the band's transition into another musician's solo or a restatement of the song's melody. A software developer may plan to deliver a new feature or fix a defect before the end of a specific iteration. This allows

her to plan specific activities such as design, modeling, coding, testing, reviewing, documenting, and so forth.

A form helps a team coordinate its efforts and increase synergy. The degree to which the team can reap those benefits depends on its ability to navigate a form. Such a form must define more than just the beginning and end of the activity. Sections, phases, and iterations are all examples of subdividing an activity. These subdivisions reduce the activity to more manageable chunks and give teams checkpoints against which to synchronize. It's important to use a form that works for each situation. If too few checkpoints are spread too far apart, the coherency of a team's efforts may suffer. Too many checkpoints occurring too frequently may add unnecessary overhead and reduce productivity.

The way in which an activity is subdivided is also important. It's interesting to note how the form for software development projects has evolved over the decades. In projects that employ the waterfall model of development, the form defines four or five long phases for the project, with each phase focusing on one specific task. This means that all the requirements must be determined before moving on to the design, all that work must be completed before writing all the code, and so forth. In contrast, the form for a project using an agile methodology is more finely subdivided, with each iteration featuring a compressed cycle of all the software development activities to produce usable software.

Proponents of agile software methods tout them as vastly superior to the waterfall method. Indeed, they have many advantages. Agile methods can be particularly effective when a lot of change is expected or when, as is often the case in software development, many factors are not entirely known or understood. Does this mean that all activities can benefit from an iterative method? If you look back at the form of a political or military campaign, you will notice an uncanny similarity to the waterfall method. A similar form also is used in the construction of a building. Software development is a very different type of activity than hardware development or warfare or building construction. The cost of making changes is far lower, and the likelihood of unexpected changes is greater. When an aspect of a project involves substantial cost, it is critical to mitigate risks and get things right the first time. If you're deploying 20,000 troops into enemy territory, you can't simply drop them in there and then start iterating. It can be helpful to iterate if an initial plan goes awry, but the overwhelming bulk of the planning must be done up front wherever possible. Agility is a capability predicated on a mindset of responsiveness and flexibility. You should feel entirely comfortable using the waterfall method or some form of it if it provides sufficient agility yet enables

you to effectively manage risks and costs. It's far more important to follow the rules "Maintain momentum and "Lead on demand" and to heed other useful principles than it is to subscribe to specific methods.

Tempo

Tempo is the overall pace of an activity. It sets the speed at which individuals must deliver their respective contributions. When people must follow rules that dictate the specific content and method of their contributions, they may have trouble keeping up with a pace that is too fast. On the other hand, freedom from such rules can allow them to meet objectives while altering their contributions as required. For example, when I perform in a large ensemble with 13 to 30 musicians of the Impressions in Jazz Orchestra, most of what each musician plays comes from written parts. There's an expected range for the tempo for any given tune we play. Duke Ellington's "Stevedore Stomp," for example, is typically played with a tempo of 260 beats per minute. If I count it off faster than that, either deliberately or by accident, the entire band has to maintain the pace I set, playing all the notes written in their parts at that tempo. If the tempo of the performance is significantly faster than the pace to which people are accustomed, and if they can't play all their notes well at that speed, the performance will suffer. At best, it might weaken the presentation, with some notes being dropped or tentatively played. At worst, it might result in a total train wreck as people stumble over their parts and lose track of their place in the music. The effects can be cumulative, as one person's loss of stability affects others who depend on him or her. Just as a tempo that is too fast can lead to problems, a too-slow tempo can also be problematic. For example, the duration of each note is increased and wind instrumentalists must blow for a longer time. For many pieces of music, the piece "sits" right and feels comfortable at a certain tempo range.

In improvised passages within predominantly prescribed music, or in small-group jazz performances in which there is little sheet music to read and most of the notes are improvised, the musicians can cope with a much larger variation in tempo. A simple jazz standard such as "My Funny Valentine" can be played at any tempo, from a really slow ballad at 60 beats per minute to a fast burner at 300 beats per minute. Individual musicians alter their contributions to suit the tempo, while still meeting objectives such as stating the melody or improvising a solo.

In music, variations in tempo typically come at the discretion of the musicians, or at least the leader or conductor of the ensemble. The tempo

contributes to the character of the music. A jazz standard played as a slow ballad has a very different feel compared to when it is played at a medium tempo. It's very different again when played as a burner. Miles Davis's first quintet played many jazz standards on the classic 1956 Prestige albums *Relaxin' with the Miles Davis Quintet*, *Steamin' with the Miles Davis Quintet*, *Workin' with the Miles Davis Quintet*, and *Cookin' with the Miles Davis Quintet*. If you listen to performances of the same tunes by the second quintet, such as those on the 1965 Columbia recordings, available as a boxed set called *The Complete Live at The Plugged Nickel 1965*, you'll find that the second quintet almost always employed faster tempos. The character of each comparative performance is poles apart.

Listen to the Difference

Listen to the performance of "If I Were a Bell" on *Relaxin' with the Miles Davis Quintet*, recorded by Davis's first quintet in 1956. Then listen to the 1965 performances by Davis's second quintet at the Plugged Nickel: One performance was recorded in the first set on the first night, and another even slightly faster performance was recorded in the first set the following evening. For further comparison, listen to a performance from the *Saturday Night at the Blackhawk* recording of 1961, which features Davis with a transitory band between his first and second quintets. There's also a great performance by the second quintet in Tokyo in 1964 on the album *Miles in Tokyo*, which is now also available in the boxed set *Seven Steps—The Complete Columbia Recordings of Miles Davis (1963—1964)*. To be fair, there's a great deal more going on in the recordings of the second quintet than just the faster tempos. The musicians are far more daring and evolve the music in all manner of ways. However, it's also arguable that the faster tempos on the standards facilitated their approach to the music. As a special bonus, if you listen to the performance in Tokyo, pay attention to how the band halves the tempo for Davis's solo at the end (time reference 7:35). This can be seen as a nod to the first quintet and brings the musical development full circle.

In other domains, where variations in tempo occur for different reasons, the effect on team members is the same. In a software project, a team may be tasked with delivering a new feature in three months. The only problem is that they had estimated it would require six months. They've just learned that a competitor's product will include a similar feature in a release that will be made available next month. The team's ability to respond to such a dramatic difference in tempo depends greatly on the freedom they have to act

on their goals. They may have to drop specific elements of the feature or reduce its performance to get the feature delivered in time. They may not be able to deliver the product on all the platforms that the product supports, or the user interface and documentation may not be translated to all the languages they usually target. Perhaps the documentation will have to be very lightweight, and they will need to compensate with articles and tutorials that will be delivered at the company's website after the release of the software. Perhaps they can deliver the feature exactly as originally proposed, but they will have to drop or compromise another feature. If the company's processes are so rigid that they can't tolerate these kinds of tradeoffs, delivering the feature by the required date simply may not be possible.

It is sometimes said in music that there's no part that is too hard—there are only tempos that are too fast. This is indeed true. Yet even when musicians must stick to the script and play all the notes on the page, when the tempo is fast enough that they have difficulty with their parts, I encourage them and work with them, where necessary, to simplify the parts. Sometimes notes can be intentionally left out, or *ghosted*, a technique in which the note is only implied, not fully sounded. The difference to listeners may be negligible. Sometimes playing all the notes at a faster tempo can actually sound worse because the music becomes too dense or too heavyweight and loses the intended character. In these cases, simplifying the part is the right answer both technically and artistically. Thus, even when it appears that the rules may make it impossible to deliver on time, you may be able to make subtle but highly effective optimizations to turn an impossible task into a possible one.

In agile software development, much has been made of the timebox in which the end date of an iteration is fixed. This is an important concept because a large proportion of software projects are late in delivering. In a timebox, instead of moving a date to accommodate a deliverable, the deliverable—or, at least, the way in which it is implemented—must be altered. In music, as in most real-time activities, timeboxes are always in effect. In basketball, when mere seconds are left on the clock and a team is down by one point, the players don't have the luxury of extending the available play time. By the way, this is one of the many reasons Michael Jordan is one of the greatest basketball players ever. He won no less than 25 NBA games in the final moments of the game. In 24 of those games, he made his move in the final 10 seconds; the other was in the last 22 seconds. Eight of the game-winners were right on the buzzer (Mitchell 2001).

Self-organizing, agile individuals and teams can respond to unexpected tempos when they have freedom to determine how they will achieve their goals.

When a tempo is set for any given activity, it must take into account the goals of the activity, the abilities of the individual team members, and the flexibility of the processes that guide them. Self-organizing, agile individuals and teams can respond to unexpected tempos when they have the freedom to determine how they will achieve their goals.

Pulse

A musical pulse is just like the heartbeat of a person. It's a constant, regular event that drives the music and helps the musicians maintain synchronicity with respect to the tempo. The pulse is always a function of the tempo. In jazz, the tempo is communicated by the drummer more than any other musician. The bassist, however, is the primary communicator of the pulse. The drummer and bassist must “lock in” together and maintain the same tempo. Most music maintains the same tempo from the beginning to the end of the piece. Longer, complex pieces may change the tempo in different sections or temporarily slow down or speed up in specific sections such as transitions or endings, but generally the tempo stays constant for extended periods of time. In contrast, a bassist can alter the pulse, and the drummer and the other instruments must usually follow along. If they choose to go specifically against the pulse set by the bassist, it introduces tension into the music. This may actually be a desirable thing, and a bassist may set up such a situation purposely. However, for the most part, the pulse is felt consistently throughout the band, just as it is felt in all the arteries of a person's body.

In Chapter 1, “Use Just Enough Rules,” I described how a bassist may play in two by playing two beats per bar, or in four by playing four beats per bar. This is an example of a musical pulse. The pulse is significant because improvising musicians play to the pulse, not the tempo. When a small jazz group plays a slow ballad, they may occasionally play one or more sections of improvised soloing in a double-time feel. This is often done to introduce some variety into the character of the piece. In double-time feel, the tempo doesn't change; neither does the rate at which the chords in the song's harmony are traversed. The musicians create the *illusion* of doubling the tempo by doubling the pulse and effectively playing in eight. Although the pulse is communicated throughout the band by the bassist, he or she may take direction from

others in setting that pulse. You may sometimes hear a saxophonist play a run of notes in the preceding beats to a section as a signal that he or she wants to move into a double-time feel, and the bassist often responds and completes the transition. Alternatively, the bassist may resist the urge for a while, which creates tension and, thus, interest in the music that is resolved when either the bassist moves to playing in the double-time feel or the saxophonist abandons the push to go there.

In a general sense, the pulse is a mechanism a team can use to cope with a tempo that is too fast or too slow for their liking. Instead of synchronizing directly with a tempo, they lock into a pulse that is related to the tempo but may be changed even while the tempo must remain constant. To some degree, external constraints, such as the actions of competitors, dictate the tempo. In companies, senior management may set the tempo of business or a particular project, but the leaders of the teams can set the pulse. The leader of a military squad might double-time the pace of the squad's march, to get to a certain location to rendezvous with another squad or avoid an encounter with an enemy or with bad weather. The leader of a software development team faced with multiple critical issues might increase the number of team meetings for a two-week period to resolve the problems. At the same time, the leader might increase the number and type of approvals required to deliver changes to the codebase. This would slow down the rate of change to the codebase and minimize the possibility of further destabilization.

Although a pulse is communicated to the greater team and to consumers, experienced contributors don't pay attention to every pulse. For example, a fast four-beat jazz piece might be perceived as having a rapid pulse that pulsates on every beat. However, many experienced jazz musicians will feel an internal pulse at a quarter of that rate, coinciding with the first beat of every bar. In some cases, when the form of the song defines sections with multiples of 4 bars, such as 8 or 16 bars, a musician will actually think in 4-bar chunks. Similarly, a jazz waltz, like a classical waltz, has a three-beat feel with three beats to a bar. Examples include "Waltz for Debby," "Alice in Wonderland," "Jitterbug Waltz," "Bluesette," "Someday My Prince Will Come" (popularized in jazz by Miles Davis), and "My Favorite Things" (introduced into the jazz canon by John Coltrane). If the bass walks and plays a note on every beat in a jazz waltz, the pulse might seem rapid, but experienced musicians focus only on the first beat, ignoring the other beats and feeling the pulse *in one*. When the tempo is fast and the pulse is fast, experienced musicians know that the only way to realistically manage things is to focus less on the details and think more generally. For musicians, that translates to thinking more

about the shape and overall story of a solo and less about the specific notes. For a racecar driver, it's about thinking of the path through a series of turns instead of overly focusing on each specific turn. When we get bogged down in the details, we increase the likelihood of destabilizing the performance.

Groove

The groove is a function of the pulse; therefore, it's also a function of the tempo. Musically, a bassist can play a song with a variety of grooves, such as Latin, bluegrass, and funk, with each groove based on a two-beat pulse. Abstractly, a groove is a specific set of essential, fundamental activities that are repeated with respect to the pulse. As an example, the Rational Team Concert development team typically operates with a tempo and form that dictate four-week iterations. The pulse is weekly, with the groove as follows:

Monday	Integration build (a.m.) Meeting of Project Management Committee (90 minutes) Teams deliver new functionality and fixes for defects Integration build (p.m.)
Tuesday	Integration build (a.m.) Meeting of all team leads and interested stakeholders (60 minutes) Teams deliver new functionality and fixes for defects Integration build (p.m.)
Wednesday	Integration build (a.m.) All-hands testing
Thursday	Integration build (a.m.) Meeting of all team leads and interested stakeholders (30 minutes) Teams deliver new functionality and fixes for defects Integration build (p.m.)
Friday	Integration build (a.m.) Teams deliver critical fixes if Thursday p.m. build is not usable (stable) Optional integration build (p.m. or earlier) to incorporate critical fixes Distribute build

In the last (fourth) week of an iteration, which is called a milestone week, the groove varies slightly, with the addition of team leader meetings on Wednesday and Friday. The additional meetings are needed because there is a specific focus on delivering new functionality for the milestone while ensuring a stable build that interested consumers can adopt and the development team can use for self-hosting. Self-hosting is synonymous with **dogfooding**, a term used in the software industry that comes from the phrase “eating one’s own dog food” and refers to the practice of using the products that you build. Dogfooding is especially effective if you use early builds of your own products as valuable feedback on functionality and defects can be given as new features evolve. Looking at this set of activities in our groove with a little less detail, we have this:

	Week 1	Week 2	Week 3	Milestone Week
Monday	Build	Build	Build	Build
	Code	Code	Code	Code
	90-minute	90-minute	90-minute	90-minute
	PMC meeting	PMC meeting	PMC meeting	PMC meeting
	Build	Build	Build	Build
Tuesday	Build	Build	Build	Build
	Code	Code	Code	Code
	60-minute	60-minute	60-minute	60-minute
	TL meeting	TL meeting	TL meeting	TL meeting
	Build	Build	Build	Build
Wednesday	Build	Build	Build	Build
	Test	Test	Test	30-minute
				TL meeting
				Test
Thursday	Build	Build	Build	Build
	Fix	Fix	Fix	Fix
	30-minute	30-minute	30-minute	30-minute
	TL meeting	TL meeting	TL meeting	TL meeting
	Build	Build	Build	Build

	Week 1	Week 2	Week 3	Milestone Week
Friday	Build	Build	Build	Build
	Fix	Fix	Fix	30-minute TL meeting
	Optional build	Optional build	Optional build	Fix
	Distribute build	Distribute build	Distribute build	Optional build
				Distribute build
				Self-host on build

Can you see the groove in this table? Let’s try a rhythmic exercise. With your fist or open hand, lightly hit the desk or your thigh, as if you’re simulating a drumbeat. Hit the “drum” at a rate of approximately once per second, and keep it going continuously. Each beat of the “drum” represents a weekly pulse. Now with each pulse, say “BE-bop,” giving equal time to each of the two syllables and stress the first syllable as you hit the drum. Repeat that three times, and then on the fourth pulse, say “BE-bop-bop-bop,” but say that twice as fast to keep in time with the pulse. “BE” corresponds to a 60-minute meeting, and “bop” corresponds to a 30-minute meeting. So you’ve got this:

Lyrics:
Pulse:

BE-bop
Beat

BE-bop
Beat

BE-bop
Beat

BE-bop-bop-bop
Beat

Repeat the four-week sequence a number of times, and you’ll be feeling the groove of a software development team!

A groove invites everyone to participate and align their contributions with it.

When you listen to music with a pulsating beat and an infectious groove, you enjoy it and feel like joining in. You may find yourself repeating elements of the groove to yourself or improvising little rhythmic or melodic elements that complement the existing parts of the groove while fitting right in alongside them. A groove invites everyone to participate and align their contributions with it. A groove is most effective when it is simple and clear to everyone.

Momentum in an Organization

I mentioned at the beginning of this chapter that destructive momentum can be a problem. Yet even constructive momentum can cause problems if it is not effectively managed. To begin with, all contributors should be aware of the process by which form, tempo, pulse, and groove are defined. In a jazz ensemble, the form is typically set by the composer of the music to be performed. The leader of the group sets the tempo, and the rhythm section plays an important role in helping the ensemble maintain that tempo. The rhythm section is also largely responsible for defining the pulse and the groove, although those musicians may follow a composer's directions, if any are given. The bassist often takes the lead in defining the pulse and the groove, although this can vary with different ensembles. The drummer, if there is one, is the primary communicator of the tempo. It's natural for this responsibility to fall to the drummer because everyone in the ensemble can clearly hear the unique timbre of the drums. Short, sharp sounds such as the click of a hi-hat or the snap of a snare allow the drummer to clearly delineate the time. Both the drummer and the bassist play repetitive parts, and this provides the predictable regularity that others in the ensemble can hook into. In software development, a project manager or release manager may set the form, tempo, and perhaps pulse and overall groove, with component team leaders setting specific grooves within their own teams. The assignment of responsibilities can vary greatly. What's important is that everyone understand where the responsibilities lie and stay willing to help build and maintain momentum. Just one person working against the effort can render it ineffective.

The idea that specific grooves may exist within the framework set by a more general groove is important. In Cuban music, the efforts of a multiperson rhythm section are defined first by a pattern known as the *clave* (pronounced “CLA-veh”), which is played on a pair of wooden sticks known as *claves*. All the other rhythm section instruments, including the *timbales*, *congas*, *bongos*, *maracas*, *guiro*, *piano*, and *bass*, each play their own specific rhythms that lock into the *clave*.

In large teams or organizations, or in complex projects, there may be multiple independent but related efforts that each benefit from momentum. For example, a software development team may define an annual cadence of product releases and updates as follows:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
					MAJOR						
								FIX			
											MINOR
		FIX									

This cadence defines four deliveries, as follows:

- A major release in June (such as 4.0), with fixes and substantial new features
- An incremental maintenance fix-pack in September (such as 4.0.0.1), with fixes for defects
- A minor release in December (such as 4.0.1), with fixes for defects and a few new features
- Another incremental maintenance fix-pack in March (such as 4.0.1.1)

July and August are vacation months, and one of the fix-packs must be delivered while the work for the major release is underway. The momentum associated with such a schedule is very important because it affects customers; they may need to know when new features or defect fixes will be delivered so they can plan rollouts of software updates in their organizations. This schedule implies a monthly tempo and a pulse in which there is a release every three months. The groove is **Fix–Major–Fix–Minor**. Say it to yourself a number of times rhythmically to feel the groove, with a stress on the releases in bold. The annual form, evident in the table, is this:

- Six months of intense work
- Two months of vacation
- One month of fixing
- Three months of relatively intense work

The development schedule for each of these releases employs its own form, tempo, pulse, and groove to help maintain momentum for the delivery of its release. The tempo and pulse could be weekly, whereas the form for a major release might look like this:

Iteration	Duration
M1	6 weeks
M2	6 weeks
M3	6 weeks
RC1	3 weeks
RC2	2 weeks
RC3	2 weeks
RC4	1 week

The groove might define builds, team meetings, and testing and fixing efforts, as described earlier.

Maintaining Momentum

Looking ahead for potential issues and addressing them before they become problems helps avoid a loss of momentum. This outlook can be seen as a strategic perspective more than a tactical one, but that's not to say that you should look only strategically. Strike a balance between planning and simply reacting. Both extremes have their own problems. It is possible to plan too much and become overly confident as a result. On the other hand, you simply cannot plan for some things, such as aberrational events. This is why it is essential to maintain a state of readiness in which you can react and improvise. When a team must respond to change, each member of the team must react quickly enough that momentum is not lost.

The combination of tempo, pulse, and groove defines the rate at which the participants in an activity generate change. If jazz musicians play a slow ballad, the tempo will be slow, with typically no more than 60 beats per minute. To get a feel for this tempo, tap or clap once per second. The bass often plays in two, which essentially means the pulse is half the tempo. To feel that pulse, tap or clap once every two seconds. If you can, keep playing that pulse while you read on. Now what about the groove? Ballads are usually introverted, with a solemn, melancholy, or reflective disposition. The groove must be very simple; for that reason, it is usually the same as the pulse, with no additional complications. Even a soloist playing over the top of this will often play sparsely, with very few notes. As a result, the overall velocity is low. You can stop the pulse now if you managed to keep it going through those last few sentences. Everything we've discussed—the slow tempo, the two-beat pulse, the simple groove, and the simple playing over the top—creates

temporal tension. The listener must patiently wait for each change to materialize, and the result is dramatic. Imagine a small group, perhaps a trio or a quartet, playing a ballad. Recalling that momentum is a function of mass and velocity, we would expect the momentum to be very low because the velocity is low and the group is small. When the momentum is this low, a real danger of losing stability arises. This can happen in any task in which a small number of people are producing a low rate of output.

Jazz musicians do two important things to prevent a loss of stability from low momentum. First, they impart greater weight to specific notes. They do this by choosing the notes carefully, placing them with extreme precision, and stressing the note or playing it for its full duration. When playing fewer notes, the importance of each one increases. Second, specific notes are set up by playing one or more short notes immediately preceding the expected note. This has the effect of preparing the listener and the other musicians for the expected note. To get a feel for this, let's perform a number of exercises in rhythm.

Begin by tapping out a slow pulse like you were doing previously. Once per second, tap your hand on a table or on your thigh and say "DUM" at the same time. Once you've gotten a feel for the regular pulse, begin to precede the occasional note with "ba" as in "ba-DUM" but make sure "ba" is short so you maintain a regular pulse. Do you feel the difference when you prepare the note? To get more sophisticated, say "ba-pa-DUM" and always make sure that "DUM" falls with the tap of the hand on the expected regular pulse. The use of these preparatory notes effectively increases the velocity and momentum for a short period of time, leading up to one specific, expected contribution. To make the benefit of these preparatory notes more obvious, let's slow down the pulse so that is extremely slow. Tap and say "DUM" and leave nine seconds between each pulse. To do this and actually maintain a regular pulse, you will have to subdivide the time in your head by counting silently between the pulses. Say "DUM" followed by "2, 3, 4, 5, 6, 7, 8, 9, 10," but count the sequence of numbers silently. Perform this slow version of the exercise for someone else. They will find it extremely difficult to predict when the next pulse falls. However, if you set it up with a preparatory note, then they have an idea that the pulse is coming. You can also speed the exercise up and tap out the pulse at, say, 120 beats per minute or two taps per second. If you listen to a jazz performance, pay close attention to the sound of the bass and you will occasionally hear the bassist adding these preparatory notes to impart more momentum into his or her bass line. It's important to note that the technique of giving weight to notes and the technique of preparing notes both help to maintain or increase momentum at any tempo. It's just that they can be critically effective at a slow tempo.

What Is Swing?

People often refer to the concept of **swing** when they refer to jazz. People often ask what swing is. Swing is many different things, including a particular style of jazz and dance, a somewhat intangible feeling of movement and momentum and a specific rhythmic device. It is the rhythmic device that can help give the music that feeling of movement and make it swing, so to speak. In music, a note that is one half of a beat in duration is known as an eighth note. If you tap “1, 2, 3, 4,” you are tapping quarter notes. If you simply add “and” after each beat and maintain the same tempo, then you have eighth notes. So you would say “1-and-2-and-3-and-4-and” with equal time given to each syllable. To employ the rhythmic device of swing, make each number longer and each “and” shorter. If each beat is divided into thirds, you would give about two thirds of the time to the number and one third to “and.” It’s a little bit like the rhythm you’d get if you were skipping or like what you might have gotten when you were saying “DUM” above with preparatory beats. So you would say “DUM-ba-DUM-ba-DUM-ba-DUM-ba” (don’t forget to tap) and so forth. The rhythmic device of swing is yet another method of imparting momentum to the music of jazz.

There is an interesting poetic equivalent to the rhythm of swing. **Iambic pentameter** is the meter that William Shakespeare typically employed when he wrote verse. In poetry, a **foot** is a group of syllables. Iambic refers to two syllables, the first unstressed and the second stressed. An example is the word “tra-PEZE.” Iambic pentameter is five feet or five pairs of alternating unstressed and stressed syllables. Here is the first quatrain from Shakespeare Sonnet 128 with the stressed syllables in bold:

How **oft** when **thou**, my **mu-sic** **play’st**

Or more plainly:

ba-DUM-ba-DUM-ba-DUM-ba-DUM

You may notice this is the reverse from “DUM-ba-DUM-ba” etc. It doesn’t matter how you begin; once the rhythm is in use, the effect comes into play. What’s interesting is that the lilt of the meter is very much like the rhythmic device of swing. As you can see, Shakespeare swings, too, and this is perhaps one reason why his poetry is so entrancing.

How does the use of these techniques play out in other activities? It should be possible to give more weight to a specific contribution in any activity. For example, in a business or software development team, you can have additional people lend their help. Senior people especially can make a difference. The idea is to not only help ensure the success of those specific contributions, but to communicate their importance to everyone. Similarly,

you can increase the momentum leading up to a specific contribution by setting it up with a smaller preparatory effort. People do this all the time. If a team has an important monthly meeting, the chair of the meeting might send out one or more reminder notes in the days leading up to the meeting. This ensures that people don't accidentally miss the meeting. The chair might also send out an agenda and any preparatory materials to ensure that people will be effective at the meeting.

You can increase the momentum leading up to a specific contribution by setting it up with a smaller preparatory effort.

There is one other important technique that jazz musicians use to maintain momentum, and that is **syncopation**. This is a completely independent technique from the rhythmic device of swing. The two can be used separately or together. In Latin jazz, straight eighth notes are employed just as in classical music but syncopation provides the momentum.

Syncopation is quite simply the technique of deviating rhythmically from a regular pulse. One way to do this is to alter the timing of notes. If you say “DUM-DUM-DUM-DUM” evenly, then there is no syncopation. You can suspend or delay the second note by pausing for two-thirds of the note (we’re also using the rhythmic device of swing at the same time) and then filling in the last third with a preparatory note. So you would say “DUM-[pause]ba-DUM-DUM,” and of course don’t forget to tap. Your second tap will be right on the pause. Repeat this a few times and you’ll notice that the suspension of the second note creates momentum simply because the pause causes people to feel or imagine the missing note. Of course, the note is not actually missing but simply delayed. Let’s try syncopation another way by anticipating the second note. What we will do is begin the second note where the last third of the first note would be. We will then hold that note until we get to the third beat. So we say “DA-ba-aa-DUM-DUM” and make “DA” short (two-thirds of a beat) and “ba-aa” one continuous note. If you tap at the same time, the second tap will coincide with “aa.” Anticipating the note generates momentum by creating the illusion that the tempo is increasing.

Suspension and anticipation can be used to increase momentum by altering the timing of contributions with respect to a regular pulse. These techniques of syncopation give people freedom in the timing of their contributions. Here’s one final example to illustrate a third way to syncopate. Notice the emphasis on the first word at the beginning of one of Shakespeare’s most famous lines:

Now is the **win-ter** of our **dis-con-tent**

DUM-ba-ba-DUM-ba-DUM-ba-DUM-ba-DUM

Rather than changing the timing of words, Shakespeare simply alters the placement of the emphasis. The technique of displacing accents is employed in almost all music, and jazz musicians use it frequently.

There are two important points to keep in mind when syncopation is employed. The first is that you must always respect the pulse even when the syncopation is extended or constant. If you lose track of the pulse then you will lose momentum. The second point is that when you contribute in a way that deviates from the pulse, you should do it with total commitment to avoid the deviation being misinterpreted as a mistake. If you listen to jazz musicians, they will regularly accent syncopated notes to make them a rhythmic feature. If you had a regular Thursday meeting and then one week you had to move the meeting to Wednesday, you would try to reschedule the meeting in a way that avoids any confusion. When competitors come into play, then obfuscation, discussed in Chapter 8, “Act Transparently,” should be employed. If your regular product cycle is to make available a major release of a product in June but then one year you want to get the jump on the competition, you might want to communicate this syncopation clearly to your team but not to your competitors.

It’s important to understand that when people interact together in support of momentum, there may be variances with respect to the tempo, pulse, and groove. Many new jazz musicians practice with “play-along” recordings because they don’t have easy access to other musicians. This is quite difficult to do, and many people believe it doesn’t help develop the correct sense of tempo and groove. One reason is that a recording cannot respond to a live musician. The reality of being human is that our timing can’t always be exact at a high resolution. An electronic or mechanical drum machine might be able to play in perfectly exact time, but we prefer the sound of a good human drummer because a human can do creative things and respond in ways that a machine cannot. Although the drummer is the primary communicator of the tempo in a typical jazz context and the bassist is the primary communicator of the pulse, the reality is that everyone in a band is responsible for the tempo, the pulse, and the groove, and everyone has the ability to weaken and strengthen them. It’s interesting to study some of the famous pairings of drummers and bassists. Some jazz musicians are well-known for playing on the front of the beat; others are known for playing on the back of the beat and others squarely on the beat. By analogy, in any activity, certain people

will be more gung-ho, with a tendency to move quickly, and others will be more cautious, often waiting for others to move first. No style is better than the others, but it can be useful to understand the subtle nuances of each. A well-balanced team should have a mix of both styles. If too many people in a team want to rush in, the team may take unnecessary risks. If the team's thinking is too conservative, the team may not be competitive.

Recapitulation

- Momentum is the tendency or impetus to continue in a specific direction.
- If velocity is a measure of how quickly a team is progressing, momentum makes it easier to continue at a constant velocity and also increase velocity.
- When momentum is present, fewer resources need be consumed in order to advance. Momentum can make it easier to establish positive feedback loops such as economies of scale.
- The rule in physics that momentum is a function of velocity and mass can be applied generally. For example, for any given velocity, a larger team or organization will have more momentum than a smaller one.
- Getting started, or “getting the ball rolling,” can be one of the hardest things to do. To reach critical mass, considerable resources may need to be expended, especially if resistance must be overcome.
- The single most important element of momentum is regularity. People are naturally drawn to the predictability of regular cycles.
- Momentum can be maintained by managing four operational elements that leverage people's affinity for regular cycles: form, tempo, pulse, and groove.
- *Form* is a structure that organizes an activity. People use the predictability of form to help them set goals, time their deliveries, and shape their contributions.
- Teams use checkpoints to coordinate their efforts and increase synergy. If too few checkpoints are spread too far apart, the coherency of a team's efforts may suffer. Too many checkpoints occurring too frequently may add unnecessary overhead and reduce productivity.

- *Tempo* is the overall pace of an activity. It sets the speed at which individuals must deliver their respective contributions. Using just enough rules can give people the freedom to keep up with a tempo that is very fast by altering their contributions as required.
- A *pulse* is a constant, regular event a team can use to cope with a tempo that is too fast or too slow for their liking. Instead of synchronizing directly with a tempo, they lock in to a pulse that is related to the tempo but may change, even while the tempo must remain constant.
- A *groove* is a sequence of scheduled events that are repeated continuously. It is a function of pulse and, therefore, a function of tempo. A groove invites everyone to participate and align their contributions with it. Within a team, many specific grooves may work synchronously within the framework set by a more general groove.
- Maintain momentum by adding weight to a contribution to give it greater significance. This is particularly helpful at slower tempos.
- Maintain or increase momentum by preparing a contribution with a preceding smaller contribution.
- Increase momentum and take liberty in the timing of your contributions by employing syncopation to either anticipate or suspend a contribution. You can also syncopate by altering the placement of emphasis within a stream of contributions.
- When people interact together in support of momentum, there may be variances with respect to the tempo, pulse, and groove. In any activity, some people will be more gung-ho, with a tendency to move quickly, and others will be more cautious, often waiting for others to move first. A well-balanced team should have a mix of both styles.

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