CHAPTER

1 What's Really Different About Knowledge Work

Just about everybody recognizes that work is changing as we enter the 21st Century. When we refer to this change, we talk about a shift from an industrial economy to an information economy, from physical work to knowledge work. But we don't yet really know how to think about the evolving nature of work. We still base our frameworks and metaphors solidly on learning from the previous era. We know our industrial age thought patterns intimately. We're comfortable with them. We love them because they are so successful for us as we strive to work and manage well, to create economic value, wealth, and improved standards of living.

Let's be clear about what we are claiming: As business becomes more dependent on knowledge to create value, *work becomes more like art.* In the future, managers who understand how artists work will have an advantage over those who don't.

It would be convenient if our accumulated industrial era understanding extended perfectly into the information age, if the future of management projected smoothly from its past. But it doesn't. The sooner we admit this and get on with the task of new learning, the sooner we'll be able to push on to even greater economic success.

This book proposes a framework, an "enabling metaphor," for doing and managing knowledge work. We draw this framework from a source that may seem strange at first, the collaborative arts. This is no cute spin or angle. Let's be clear

about what we are claiming: As business becomes more dependent on knowledge to create value, *work becomes more like art*. In the future, managers who understand how artists work will have an advantage over those who don't. The implications of business becoming more "art-like" must be taken into account as we seek to manage knowledge work and knowledge workers. Management methods born in the factory or descended from industrial age ideas don't successfully manage artists making a play, and they don't successfully manage cutting-edge software developers. People use terms like "software engineering," "knowledge management systems," and "product development factories," unaware that these industrial metaphors, once so enabling, have become restrictive. When your product is "thoughtstuff,"[1] imagining your methods in factory terms holds back your originality. At a certain level of routine, these metaphors still function effectively, but leaders in an increasingly wide range of knowledge work need to move on. That's where this book comes in.

We'll show that successful methods now evolving in business increasingly resemble those of artists, that management of modern knowledge work resembles directing a theatre ensemble more than it resembles supervising a factory floor. And, given this, we'll suggest a new enabling metaphor as a tool for thinking about work and management, illustrating it with art and business examples.

We badly need this alternative metaphor. Without it, our industrial age reflexes cause us to fall back on industrial metaphors. Deep in our hearts, we all know the factory is the wrong model for knowledge work. As friend and colleague Tom DeMarco has aptly put it, the factory metaphor is "the elephant in the bathtub that all us other bathers are pretending not to notice."[2] Even people who admit the different nature of knowledge work have difficulty accepting the full implications of the differences. That elephant is troublesome, we concede, but we cling to its attractive qualities.

Let's be equally clear about what we are *not* saying here. We are *not* advocating "loose" management. The idea that arts practice is less rigorous than business practice is a major misconception. We're not proposing that you give up structure or

discipline or fiscal responsibility. We *are* proposing alternate ways to achieve them. If you think arts practitioners are somehow less constrained, that they "have it easier" than businesspeople, you are incorrect.[3]

In the multi-year study that supports this book, we identified striking structural similarities between artists' methods and methods that have recently appeared in some business areas. We became convinced that theatre practice, agile software development, some new methods of strategy making and project management, and activities in many other business areas are examples of a more general phenomenon we call *artful making*. This book describes how artful makers (executives, managers, and team members) respond to challenges increasingly prevalent in business environments, how their responses differ from those of "industrial makers." We begin our story with three real-life illustrations of what we mean by artful and industrial making in business and in art.

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Artful and Industrial Making in Action

Real work almost always includes elements of both artful and industrial making, sometimes in appropriate combination, other times not (in which case, disappointing outcomes generally result). Some situations call primarily for artful making, others primarily for industrial making. As Sun Microsystems came to embrace Web technologies, their approach was, as we shall see, mostly artful. At Ford Motor Company, the approach was discernibly different, mostly industrial. Both firms successfully adopted the new technologies. Neither provides a perfect example of an artful or industrial approach.[4] Even so, comparing these stories with each other, and then with a rehearsal at the People's Light and Theatre Company, will begin to explain the differences between artful and industrial ways of working and managing.

Realizing the Importance of Web Technologies at Sun Microsystems[5]

Sun's use of the Web began in early 1993, when a curious Sun engineer downloaded an early Web browser that had just been made available for public distribution. The engineer began tinkering with the new technology, setting up his own workstation as a Web server. He showed it to other engineers, who also began playing with it. This handful of experimenters set up easy ways for others to install Web servers and browsers on their workstations. The technology spread like wildfire throughout the firm. Someone showed it to Sun's engineering vice president, who found it interesting enough to support the creation of an external Web site, but this didn't command much attention from other senior managers. No formal initiative supported the site or acknowledged the developing grassroots interest.

The Web got management's attention in March 1994, when Web traffic on the company's network caused an entire plant to shut down by blocking customer orders. Most of Sun's senior managers first met the Web in this unfortunate context: Unauthorized employee activity had created a serious business problem. Some managers wanted to disallow employee use of the Web, but cooler heads prevailed. Sun maintained an employee culture that encouraged exploration; a blanket order prohibiting Web use would have an unhealthy effect on that culture and would not go over well with employees.

Networking engineers knew how to solve the problem, but they needed time to do it. Managers came up with a policy to buy them that time: Any employee who generated Web traffic would incur a $50 charge to her or his department for the month. Department managers would take notice of these charges, and employees, knowing budgets were being impacted, would be less eager to use the new technology. When management announced the policy, pandemonium ensued.

Within 24 hours, the policy generated nearly 600 email responses protesting it. Within days, top management scheduled a meeting to discuss it. People jammed the halls. People

unable to show up in person linked in by satellite. Carl Meske, one of Sun's early Web users, described the meeting:

> **It was standing room only…and that room will hold hundreds. All the VPs and directors were up on the stage… People were just fuming, saying, "How dare you tax us on the use of this new tool" and "I came to Sun to get away from stuff like this." It was a feeding frenzy. People felt like this is part of our job, to research and try new technologies, and for someone to stand up there and say "You can't do that, we're going to tax you to use that"…. People were incensed.**[6]

In the end, two network engineers came up out of the crowd and explained to all that the company really did have a network capacity problem. The mob calmed. Management rescinded the tax. Employees voluntarily reduced their Web use. Senior managers turned to other matters.

But Meske and others felt that managers didn't appreciate the importance of the new technology and started thinking of ways to get the point across. They began to work with corporate librarians to catalog and index company information in Web form. When they'd made significant progress, the small, still-volunteer team of Web enthusiasts presented their work to a group of VPs in late 1994. The meeting went badly. The VPs complained about lack of support infrastructure, management buy-in, and policies governing use of the new technology. These were real issues, recognized as such, and they turned back the charge once again.

By February 1995, the informal Web team had addressed most of the issues identified in the 1994 meeting. They got the go-ahead to announce "Sun Web" officially. Web use at Sun took another step forward when Chief Executive Officer (CEO) Scott McNealy started using it to distribute audio clips. By mid-1995, Sun had more than 1,000 Web servers, many containing sensitive company information, all managed by whoever happened to be responsible for that particular computer. By the end of that year, the number approached 2,000, 99% of them at some person's desk. At this point—two and a half years after the technology had first been used at Sun—the company launched a formal institutional initiative to manage the Web at

Sun. Finally, in the view of the company's Web fans, the Web began to get the management attention it deserved.

Not until the spring of 1996, however, did Web technology leap to the top of every senior manager's agenda. It suddenly appeared that combining the Web with a computer language called Java could yield an entirely new strategy for the company. Sun referred to the important moment these two initiatives came unexpectedly together as "The Day the Universe Changed." The company set about redefining itself from top to bottom. The technology that had been discovered and spread almost by accident took over the heart of the firm; it became central to everything at Sun.

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Rolling out Web Technology at Ford Motor Company[7]

Ford's managers don't think of their company as an information technology (IT) company.[8] Their deliberate approach to new technologies reflects this. Ford designs, builds, sells, and services automobiles, and any new technology must add value to this core business. As a matter of corporate philosophy, the reasons for taking on any new technology must be well-understood before the company invests in it.

In late 1994, Ford CEO Alex Trotman attended an IBM Board of Directors meeting (as a member) and saw a presentation about then-new Web technologies. On his return to Ford, he asked Bill Powers, the Chief Information Officer (CIO), to create an external Web site and find other ways to use the technology. Powers established a formal organization to create the Ford Web site, which debuted in July 1995. In early 1996, Trotman asked a strategy group to develop an internal Web strategy. This staff group presented a white paper to senior management, in which they outlined ways the technology could help Ford internally and proposed a path of deployment. As a result, senior management created a larger organization, the World Wide Web Organization (WWWO), in May 1996.

The WWWO immediately established facilities and procedures for centralized, professional management of Web servers, even though the company had only a few at the time. The group developed a centralized indexing scheme for Web content, and in July 1996, it launched the "Ford Hub," the company's internal Web site home page. Efforts then turned to promoting the Web and its use. In August, WWWO staff traveled to Ford locations in the U.S. and Europe, presenting "road shows" to introduce people to the Web and describe the ways it could help them. The idea caught on, and by early 1997 there were more than 600 Web servers in use at Ford, most of them centrally managed by the WWWO.

By mid-1997, Ford managers could see the strategic importance of the Web. To facilitate connections between the company and its suppliers, Ford launched a secure business-to-business (B2B) server. Internal applications had begun to demonstrate business value. Taking full advantage of the Web would be a long-term initiative for a company the size of Ford, but these early programs established a successful trajectory.

Comparing Sun and Ford

When we teach these cases at Harvard Business School (HBS), we ask students to explain the differences between the stories. Figures 1–1 and 1–2 show timelines of events at the two companies; Table 1–1 contrasts features of the timelines.

Some of these contrasts are surprising. For example, two and a half years passed between the Web's first appearance at Sun and the first efforts to manage it professionally. By that time, thousands of servers were scattered all over the company, their content ensnarled in "hairballs of information."[9] Ford established a formal organization immediately, from Day One, with clearly defined objectives. Sun senior managers took even longer, nearly three years, to realize that Web technology, infiltrating the company at the grassroots level, had strategic importance. At Ford, the CEO introduced the technology, which led managers to consider it important immediately; it then rolled out formally, from the top down. The Sun

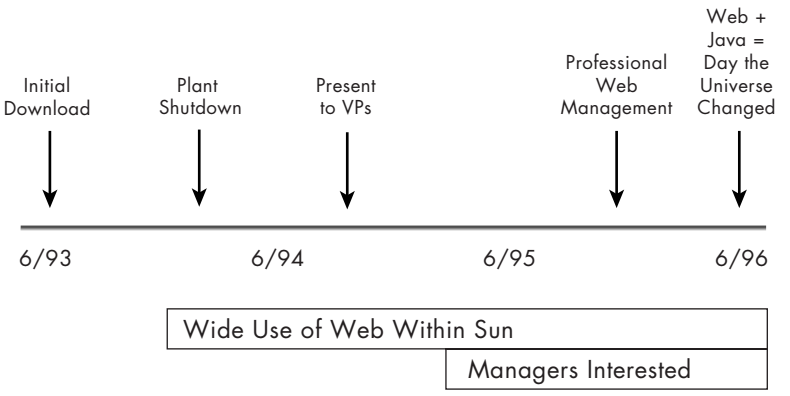

FIGURE 1–1
Timeline of events at Sun.

approach—with its cacophonous meetings and outraged employees, its trying and trying again, its managers who just didn't seem to "get it"—appears haphazard, chaotic. The Ford approach appears orderly and well-executed.

From this comparison some executives in HBS classes conclude that Ford managed well but that Sun was lucky. They give Sun little credit for managing anything. In their view, Sun's processes lacked essential structure. Without the persistence of frontline employees, Sun's managers might have missed the opportunity entirely. Probing deeper, however, they find more in these stories than a simple contrast. The Sun approach to adopting Web technology exhibits a number of interesting characteristics. For example:

- *Emphasis on emergence over planning*—Unlike Ford, Sun had no master plan for rolling out the new technology and relied instead on a decentralized, grassroots approach. No one defined project objectives in advance. The convergence of the Web project (if you could call it a "project") and the Java project on "The Day the Universe Changed" was accidental to a degree that disconcerts some executives.
- *Iterative structure*—One source of the Sun project's apparent disorderliness is the trying and trying again

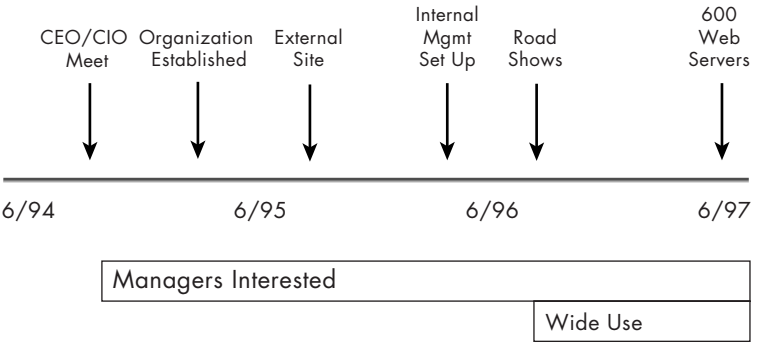

FIGURE 1–2
Timeline of events at Ford.

required to get the technology in place, in the company and in the perception of Sun's senior management. Activities overlapped, many of them uncoordinated, definitely not a case of "getting it right the first time." Periods in which people worked independently with the new technology alternated with attempts to pull things together; meeting after meeting ended without resolving the difficulties.

- *An unusual notion of supervision and control*—Sun executives can't supervise their smart engineers in any conventional sense. This is another source of apparent

TABLE 1–1 Comparison of Sun and Ford Web Technology Deployment

SUN	FORD
Bottom up	Top down
Spontaneous deployment	Planned deployment
Formal management 2.5 years after widespread use	Formal management from the beginning
Appears haphazard	Appears expertly executed
Early adopter	Adopted one year later
"Hairballs of information" Results in a new company direction	Maximally useful information Adds value to the business

disorder. The engineers seem like *prima donnas*. It took a long time—"forever," according to the engineers—for the "suits to get it." To their credit, though, the suits know they have this difficulty and have designed a culture to accommodate and even profit from it.

- *Getting things "wrong" a lot*—There are many "wrong" choices on the way to each useful choice. Sun's corporate history includes a long line of "wrong" strategic assertions and choices (e.g., UNIX workstations will replace PCs; network computers will replace PCs). Sun's process seems inefficient. But Sun executives have faith in their way of working, faith that they will move through "wrong" choices quickly enough to emerge with valuable ones. They know that goals and priorities will shift, and their methods are designed to roll with those changes and still "get it right before the deadline." Indeed, even while making their "wrong" choices, the company somehow continued to prosper.[10]

One class of executives at HBS came up with a useful metaphor for comparing the firms' approaches. Fittingly, it is an automotive metaphor. Ford, focused on the core business, drives cautiously. It's as if the company travels down a dark road, fearful of what might leap out of the blackness. To be safe, Ford drives deliberately, carefully, so that the car can stop in time to avoid obstacles. Sun, on the other hand, drives fast. Its road is equally dark, but Sun's managers do not see caution as an option in the uncertain computer business. Although obstacles can appear out of the night for Sun just as they can for Ford, Sun routinely overdrives its headlights. It must, therefore, routinely contend with obstacles, and to do that, it must invest in its *ability to swerve*. The company's management style thrives in situations where you can't know where you might need to turn in the future.

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Investing in an ability to swerve, to devise new responses to unanticipated business situations, clearly encourages creativity. But there's more to it than that. We aim to show you

that Sun's methods and processes are in fact like those of collaborative artists. To do this, we move from the hive of cubicles in Silicon Valley and the office complexes of Detroit to the old public library building in Malvern, Pennsylvania.

We enter a big room, full of light from tall windows on three sides, cluttered with odds and ends of furniture, the shiny old floor marked with stripes of colored adhesive tape. At one side sits a desk. At the desk are the play's director with a yellow legal pad and a cup full of pens, the stage manager with her kit of emergency supplies and a copy of the script, and the assistant stage manager with her script and pile of copied floor plans on which she will record the movement of the actors. The actors themselves straggle into the room with coffee cups, newspapers, rehearsal clothes, and other paraphernalia. They quietly stretch, warm up, and ready themselves for the day's work.

Streetcar at the People's Light and Theatre Company[11]

A Streetcar Named Desire, by Tennessee Williams, is a demanding play. It's long, and difficult for the performers to sustain the energy necessary to carry it off. Many people "know" the play, mostly from a 1951 film directed by Elia Kazan, starring Marlon Brando and Vivien Leigh. This creates an obligation to offer something new in production. Everybody expects to see Brando as Stanley and Leigh as Blanche. The actors playing these roles must somehow honor *and* overcome these preconceptions.

As People's Light entered its third week of rehearsal, a lot was still up in the air. The director, nominal supervisor of the group, was grappling with the visual appearance of several key scenes. The setting had been designed to move to another theatre, one with a very shallow stage; arranging the characters in this cramped space gave her some interesting problems. The actors playing Mitch and Stanley had their own tasks. The Mitch actor was 44 years old; the Stanley actor 32. No one could ignore this difference, and the two were struggling with questions of why Stanley would be great pals with such an older guy and what form their friendship should take. The two

had devised an elaborate back story (not in the script) about the army life that had made them fast friends, but they hadn't yet invented the present-time effects of that history.

Everybody knew that some things weren't coming together: Mitch and Stanley's friendship; the struggle between Blanche and the asylum people at the end; and the poker night. The group ran through each of these scenes repeatedly, everyone working simultaneously on their respective difficulties, reacting to each others' ideas and reactions. Still, the rehearsals didn't jell.

During the week, the director tinkered with the stage arrangement, moving actors here and there. Each change required myriad new choices from the actors and kept them busy in productive ways. One day, during the poker game, Mitch came up behind Stanley in his chair and pounced a half-nelson on him, pinning him at the table. The director was in the middle of thinking about something else but looked up when she heard an angry shout. Stanley struggled but couldn't get up. Everyone in the room saw the possibilities for a whole new relationship, a physical contest between the old dog and the pup that could bring new life to scene after scene.

Stanley put considerable energy into getting back at Mitch, establishing his superiority. Mitch never accepted that. The resulting horseplay got over the top from time to time, but everyone, including the director, who took notes but didn't interfere, understood how valuable this scuffling could be when worked into the gradually forming play. Mitch, as a partial result of this male-to-male violence, finally got it that his last visit to Blanche is an attempted rape, and began behaving that way. This big change in Blanche's usually gentle scene partner shocked her and moved her to a new level of terror and impending madness. The scene between them at last burst into life and began to prepare for the famous final rape.

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All these and other factors came together one afternoon. For example, the aftermath of the drunken poker night had always seemed like a letdown. This time through, Stella finally let herself go into the blissed-out lethargy of waking up the

morning after her violent bout of fighting and sex with Stanley. Her new energy forced Blanche into busy reaction. Blanche's increasingly desperate efforts to shock her sister out of this state brought the scene to higher levels of intensity.

Other actors made similar advances that afternoon. Of course, there were glitches here and there: Actors now and then forgot a line or stumbled on an unfamiliar move. But even the glitches had new life. When one actor forgot a prop, another found it on a chair and tossed it to him; he caught it smoothly and the scene went along without a pause.

Other actors, sitting at the edges of the room when they weren't onstage, watched closely. The director took notes as fast as she could. Scribbling and whispering to her assistant, she reconceived the play-to-be as it grew before her eyes. When Stanley cleared the dinner table with a roaring sweep of his arm, the two women on stage cringed in fear. So did everyone else in the room. When Mitch grabbed Blanche and tore open her robe, the room audibly gasped. The gasp turned to real horror as Blanche sagged and almost gave in before finding one last shred of self-protective energy and shouting, "Fire!" When Stella burst into the tears described as "*luxurious*" in the stage directions, even the director had to get a grip. Something big was happening. Something beyond work came into the room.

To understand artful approaches requires turning the focus knob of a figurative microscope to bring into the foreground, not the external symptoms and discrete *parts* that our industrial metaphors predispose us to notice, but rather those *qualities* of work that artists know and use.

The stage manager called, "And, lights." There followed a moment of hush, a deep and happy silence of accomplishment. Then, from someone in a far corner of the room came a burst of simulated static followed by the flat, empty drawl of NASAspeak: "Ahhh, Houston? We have play."

Comparing Sun and People's Light

We see structural similarities between the *Streetcar* ensemble and Sun's people as they circle around and converge on a new strategy. Both work processes rely on emergence,

iterative structure (trying and trying again), an unusual notion of supervision and control, and getting a lot of things "wrong" on the way to high-quality choices. More important than these structural similarities, though, are other factors that emerge when we view these examples through an artful lens: the importance of individuals' efforts to release themselves from restraining preconceptions and inhibiting circumstances; the intensity and interdependency of these collaborations; the understanding of "wrong" choices as advances rather than setbacks; the sense of the emerging product as something better and more interesting than anything a single person could have preconceived, greater than the sum of its parts; an unpredictable result that in retrospect seems inevitable.

Here lies the most important reason for managers to understand the methods of collaborative artists. It's not that traditional managers can't notice and emulate things like an iterative process structure. But to capture the full power of such processes requires understanding at a different level. It requires turning the focus knob of a figurative microscope to bring into the foreground, not the external symptoms and discrete *parts* that our industrial metaphors predispose us to notice, but rather those *qualities* of work that artists know and use. If we don't shift our focus this way, we risk reproducing the surface features of successful knowledge work without capturing its essence.

For years, Toyota has provided tours of its plants to executives from other companies, fully exposing and explaining the famous Toyota Production System. Many of these executives have returned to their own companies determined to reproduce the system faithfully. They count the same things, espouse the same principles, and so on. But as Toyota seems to realize, very few of their visitors come away with a true understanding about what is different about their system. Hence, Toyota has little fear that their methods will be used successfully to compete with them.

We want to help you see business processes through an artful making lens that looks beyond the surface features of artful collaboration to tap into the kind of on-cue innovation that theatre companies achieve routinely. To accomplish this, we'll

introduce a framework for organizing our thinking, for establishing new categories that we use to conceptualize productive activities and performance.

The Four Qualities of Artful Making (An Artful Framework)

What did "We have play" mean at the end of that *Streetcar* rehearsal? Was the work done? Rehearsals over? No. Two and a half more weeks of rehearsal and a couple of previews remained before opening night. And then, since there's no way to package a play, put it on a shelf, and bring it out for performance, the company would make it again for each night of the run.

When the actor said, "We have play," he meant that the cast's work of making an ensemble, a working group whose product is greater than the sum of its parts, had achieved its first success. The new thing in the room was *Ensemble*, one of the four qualities of artful making, and the most important step in creating the work of theatre art we call a play.

Here are the four qualities that we propose for artful making, each followed by a preliminary definition. These essential features of artful making, their relationships with each other, and their applications to work will emerge as we go along. In the body of the book, we'll discuss them all, and at the book's end we'll use them to gather up an understanding of artful making that will come together as a conception of work and working, a way to think about what you do.[12]

- *Release*—The first (and perhaps the most counter-intuitive) quality of artful making, essential to the other qualities. A method of control that accepts wide variation within known parameters. Release contrasts with *restraint*, the usual method of industrial control.
- *Collaboration*—The quality exhibited by conversation, in language and behavior, during which each party, released from vanity, inhibition, and preconceptions,

treats the contributions of other parties as material to make with, not as positions to argue with, so that new and unpredictable ideas emerge.

- *Ensemble*—The quality exhibited by the work of a group dedicated to collaboration in which individual members relinquish sovereignty over their work and thus create something none could have made alone: a whole greater than the sum of its parts.
- *Play*—The quality exhibited by a production while it is playing for an audience; or, the quality exhibited by interaction among members of a business group, and ultimately between the group and the customer.

As we've said, these qualities require discussion before they can become tools for fashioning new ideas about work. *Play* especially requires a step-by-step approach to understanding, and a conceptual leap to the idea of the product as an interaction between maker and customer.[13] We introduce the four qualities here so that they and the way they fit together can begin to take shape as you apply them to your situation.

Understanding Artful Making

In the coming chapters, we will further explain the changes an artful making lens portends in modern organizations. As we do this, we'll also answer questions that have recently been raised in areas of business where managers and workers have invented and embraced artful methods.

For example, we'll explain the specific factors and cost conditions which lead to the growing prominence of artful making at this time in history. We will identify the prerequisites that must be in place before it makes sense to take an artful making approach; in many situations, industrial making still serves very well and it would be unwise to apply artful making. We will point out similarities between evolving methods in apparently unrelated business areas and demonstrate how the artful

making metaphor conceptually unites them. We will show that artful approaches are not mysterious, or flaky or fiscally irresponsible; that they are in fact learnable, rigorous, and reliable.

In the ensuing chapters, we'll often use software development as an example of modern knowledge work. Software developers, particularly those who follow so-called "agile" practices, have wrestled extensively with the challenges of artful making; their efforts provide insight into how artful making can be successful in business. But this book is not about software development. We focus at times on agile software development because it suggests what is to come in much of knowledge work. As we shall see, the signs of change are already emerging in vastly different business areas, from strategy making to managing and financing large-scale projects and ventures.

ENDNOTES

1. Original use of this phrase to describe the materials of knowledge work was by Frederick P. Brooks, Jr. in "No Silver Bullet: Essence and Accidents of Software Engineering," *IEEE Computer*, 20, no. 4 (April 1987) pp. 10–19.

2. Personal communication with the authors, Summer 2002.

3. In fact, artistic license depends on fiscal responsibility. Only when a theatre is doing a good job on the fiscal side does it have freedom on its artistic side. If a theatre fails to balance income and expenses, it goes under. No class of business enterprise we know has more skill than some theatres at squeezing a dollar for maximum effect. That sound you hear in the hallways is the eagle screaming.

4. For example, the JavaStation rollout within Sun, a consequence of the artful events described here, was much more industrial in its approach.

5. The information in this section is drawn from Mark Cotteleer and Robert D. Austin, "Sun Microsystems: Realizing the Business Value of Web Technologies" (Harvard Business School case no. 198-007, 1998).

6. Quoted in Cotteleer and Austin, "Sun Microsystems: Realizing the Business Value of Web Technologies" (Harvard Business School case no. 198-007, 1998) p. 4.

7. The information in this section is drawn from Robert D. Austin and Mark Cotteleer, "Ford Motor Company: Maximizing the Business Value of Web Technologies" (Harvard Business School case no. 198-006, 1998).

8. During the reign of Jac Nasser as CEO, from late 1998 to late 2001, the company's managers did begin to talk enthusiastically about the role of IT and the Internet in the company's success; this ended with Nasser's ouster.

9. Cotteleer and Austin, "Sun Microsystems: Realizing the Business Value of Web Technologies" (Harvard Business School case no. 198-007, 1998) p. 7.

10. As we write, Sun faces business challenges that result from the technology market meltdown of 2000–01. Whether they emerge from this period still successful will depend, we believe, on whether they are able to do now what they have done so well in the past—develop and exploit emerging strategies.

11. This episode is based on real events in 1984, in a performance in which Lee played Mitch and that Rob attended. We offer the story as an instance of a common pattern in rehearsal process.

12. As a convention throughout this book, we will capitalize Release, Collaboration, Ensemble, and Play when we mean them as qualities of artful making. When we mean them as simple verbs ("to release") or nouns ("an ensemble"), we will not.

13. This idea is not new, but it is difficult to use. W. Edwards Deming's notion of a satisfied customer employs this idea, as do more recently Pine, Gilmore, and Pine; B. Joseph Pine, James H. Gilmore, and B. Joseph Pine II, *The Experience Economy* (Boston: Harvard Business School Press, 1999). The idea is difficult because of our historical attachment to industrial metaphors that conceive "the product" as something physical to package and sell as a discrete item. Further confusion sometimes results from failure to recognize that an artful process may create a product that may subsequently be copied with industrial methods, put in a box, and sold.