Introduction

Web Histories and Imagined Futures

In 2011, a video clip titled “What Is Internet, Anyway?” became an internet sensation.¹ Leaked from the NBC archives and uploaded to YouTube, it featured off-air footage of Today Show anchors Katie Couric, Bryant Gumbel, and Elizabeth Vargas in January 1994 struggling to understand the internet email address displayed on screen for viewers to contact the show.

“I wasn't prepared to translate that,” Gumbel tells his co-hosts, “that little mark with the ‘a’ and then the ring around it?” Couric suggests it might be pronounced “about” or maybe “around.” Still perplexed, Gum-

Figure I.1. Full-screen graphic with internet address follows a 1994 NBC news segment.
bel asks, “What is internet, anyway?” Vargas tries to explain: “Internet is, uh, that massive computer network, . . . the one that’s becoming really big now.” Gumbel fumbles for the words, struggling to comprehend how it works: “What do you mean? How does one . . . what do you do, write to it, like mail?” Confusion abounds. Couric expresses surprise that you do not need a phone line to operate internet. “It’s like a computer billboard,” Vargas offers. Gumbel pronounces the address “NBC, GE, com” with pauses instead of saying “NBC-dot-GE-dot-com.” Nobody uses the definite article “the” before “internet.” Finally, an off-camera crew member explains that internet is a giant computer network, a bunch of universities connected together.

Deemed “hilarious” and an “epic fail” by those who circulated the video through social media and technology blogs, it is striking today precisely because we can hardly imagine a world where the language and conceptual map of what the internet means were not yet in place. Typically, those of us who use the internet on a daily basis no longer need to first install Winsock and the Transmission Control Protocol / Internet Protocol (TCP/IP) stack, configure modem ports, or even distinguish between the internet and the World Wide Web. Twenty years after the Today Show hosts struggled for the language to describe this new communication medium, the internet has become remarkably ordinary. The basic workings of browsers, bookmarks, and back buttons are common sense. Understanding an email address is no different than understanding how phone numbers and mailing addresses work.

But perhaps because we do not encounter the network of the past in the same way that we find vintage I Love Lucy or last season’s Big Bang Theory on cable or rent classic films years or even decades after they were made, our cultural memory of computing seems to operate on a different scale. Website “redesigns” write over and replace earlier sites, introducing new conceptual maps, visual schemes, and functionality while creating a sense of distance from the look and feel of earlier versions. Before Facebook’s “timeline” metaphor, users of the social networking site left messages on one another’s “walls.” Acclimating to new mental models takes a little time, but once the timeline feels “natural,” the wall feels old and foreign by comparison. Within a technological and economic system that depends on a dynamic of perpetual “upgrade culture,” old platforms, operating systems, and software are left behind:
“no longer supported,” in the language of the technology industry. They are resurrected as objects of nostalgia—classic game consoles, eight-bit graphics, Polaroid image filters—“retro” goods that repackage memories of earlier media experiences by accentuating the gap between then and now. Too often, the historical narratives we tell about the internet and web are likewise organized as a series of upgrades from a buggy past to a more stable, more social, more “user-friendly” future.

Nowhere is this more apparent than in the popular histories of the web that became dominant in the wake of “Web 2.0.” When this term first gained traction in Silicon Valley, a few years after the 2000 crash of the dot-com bubble, technology journalists and pundits were embracing the idea that blogs, wikis, social networking—in other words, “user-generated content”—heralded a new, more democratic era of participatory media. *Time* magazine announced in 2006 that its “person of the year” was “you,” and the cover story breathlessly hailed sites such as YouTube, Wikipedia, MySpace, and Facebook as fostering a social revolution. This collaborative, user-generated web, the story made quite clear, was a new one: “The tool that makes this possible is the World Wide Web. Not the Web that Tim Berners-Lee hacked together...as a way for scientists to share research. It’s not even the overhyped dotcom Web of the late 1990s. The new Web is a very different thing. It’s a tool for bringing together the small contributions of millions of people and making them matter. Silicon Valley consultants call it Web 2.0, as if it were a new version of some old software. But it’s really a revolution.”3 Although the term “Web 2.0” fell out of favor within the tech scene around 2009 or 2010 (curiously coinciding with another economic crisis, precipitated by the collapse of the US housing bubble), “social media” continues to be the preferred way to understand what the web means today, how it is valued, and what the web is for.4 But these early connections linking social media with this term “Web 2.0” helped perpetuate the idea that current ways of talking about the internet involve more advanced, next-generation technologies and are therefore naturally superior to earlier efforts from the 1990s. The internet scholar Matthew Allen refers to this type of history as a “discourse of versions,” which functions by attempting to bring order and mastery over an anticipated technological future by claiming control of the meaning of the past.5 Yet the “versioning” of web history also installs a set of divisive boundaries that reinforce a
technological determinist mode of historical consciousness. As we supposedly moved from gaudy GeoCities home pages to clean Facebook timelines, from spectacular dot-com flops to social-media behemoths, a picture is painted of the past that posits an emblematic shift from “read-only” static web pages to “read-write” or participatory culture.

This book aims to show that much is left out when the web’s early years are reduced to the retronym “Web 1.0.” Such accounts neglect the complex cultural work of making digital media in the socioeconomic context of the 1990s, a moment characterized by widespread enthusiasm for the transformative potential of information technology, particularly the internet, to upend traditional institutional structures. Accusations of “irrational exuberance” persisted alongside impassioned pronouncements of a “New Economy” that claimed the old rules governing business, economics, and social relationships no longer applied in the internet age. A surge of new dot-com startups—companies such as Webvan, Pets.com, and the Globe that conducted all their business online—achieved near billion-dollar valuations on the public stock market before trading for pennies a mere eighteen months later. Today, the wild excesses of the 1990s, the stuff of legend, are now packaged as cautionary tales of what transpires when greed, gullibility, and grossly overstated hype trump sound business decisions. Whether known for the vertiginous stock valuations of year-old internet startups or for the (now laughable) amateur visual styles of “Web 1.0”—spinning graphics, sound effects, and background wallpaper—the stories of the early commercial web most often serve to show us how far we have come and what mistakes bear not repeating. But alongside the hype, the buzzwords, and the soaring NASDAQ composite, the dot-com era was also a period of remarkable innovation and unbridled excitement for the creative potential of a new cultural form. It speaks to how the future was imagined at the close of the twentieth century. By ignoring how the web was historically imagined and visualized and how web design was organized, evaluated, and reconfigured, today’s web is often framed as the gradual realization that user experience and social platforms matter.

Indeed, as an emerging new cultural industry, commercial web design involved parsing the very meaning of the web: what it was and whom it was for; how it should look, feel, and work; who was best qualified to design it; and what principles should guide these decisions and practices. As
a cultural history, this book examines how discourses of “quality” design and dominant sets of rules defining the right and wrong ways to make the web (i.e., “top ten web design mistakes that every designer should avoid”) cohere and change during this period of rising speculation in internet stocks. These shifting assumptions about the early web, however, did not just manifest themselves in web practice; they often became codified as industry standards and “best practice” guidelines and materialized in the production logics of web-authoring software, where they were used in turn to reproduce particular ideological meanings about the social life of the web, including how it should properly be imagined and designed and how users ought to experience it. Dot-com design cohered, in part, by legitimating certain visions of what the web could be while disciplining practices seen as out of the step with the future.

As media historians point out, when we look closely at the cultural milieu and reception of new media technologies—the phonograph, radio, stereoscope, or telegraph, for example—it becomes clear that there are always ways in which things may have unfolded differently. Without these histories, we risk assuming that current practices are simple common sense, a “natural” result of the way things ought to be, or that they evolved this way due to sheer technological innovation or free-market competition. Why was the web designed the way it was? To take a term from the 1990s, what does it mean for the web to be always “under construction”? How and why did assumptions about the right and wrong ways to design it evolve and change? In other words, how did we go from a physicist’s dream of global hyperspace (which is how the web’s primary inventor, Tim Berners-Lee, first conceived his project) to the walled gardens of proprietary algorithms that structure search engines, usable apps, friend requests, followers, and the quest for quantifiable social influence twenty-five years later?

To understand this shift involves investigating how the commercial web became usable and social and why these terms formed such an important, if contentious, vocabulary for interaction designers, marketers, and the internet industry at large by the twenty-first century. Today, “using” (described in terms of “usability,” “user-generated content,” “User Experience,” or “UX design”) “social” media (facilitated through social-network platforms such as Twitter and Facebook) is the dominant way of talking about websites and internet applications (now known
simply as “apps”). These terms took on particular meanings as a way to understand engagement and resurrect the internet’s commercial potential in the wake of the crash of the dot-com bubble in 2000 and 2001. Indeed, this was the context in which social media and user-generated content became known as “Web 2.0.” But, as we will see, “usable” and “social” were, from the very start, crucial ways of understanding what made the web distinct and valuable. The contours of these discourses, however, and how they were deployed in practice signaled quite different things at particular moments in the web’s history. Attending to these distinctions, I suggest, can help dislodge the evolutionary histories that are built into the discourse of versioning. How can we reconfigure upgrade culture to organize different narratives about the past? How else might we approach web history and historiography?

What Is Dot-Com Design?

To engage these questions, I want to put the two keywords from this book’s title—“dot-com” and “design”—in conversation as a way to
explore the social, economic, aesthetic, technological, and industrial contexts from which a thriving commercial web industry developed alongside a growing speculative bubble in internet and technology stocks in the 1990s. Here, “dot-com” is understood as a bundle of social, rhetorical, industrial, and technological protocols (in other words, signs, rules, and conventions) that underwrote the speculative climate of the internet technology bubble. Technically, “.com” (derived from the word “commercial”) is a top-level domain (TLD) in the Domain Name System (DNS) of the internet, a system that maps numerical addresses—required to be locatable online—to human-friendly textual addresses. As such, it is a technology that does particular work. If I were to title this book Dot.Com Design (rather than the hyphenated Dot-Com), such a move would actually make demands on the technical system of the internet: the root servers, registry, and name servers that are charged with resolving textual addresses into numerical IP addresses assigned by the internet protocol. Every time the title of a book called Dot.Com Design is typed into an email message, for example, the mail application will read “Dot.com” as a “URL call,” a request to query the appropriate servers to achieve “resolution.” It would appear in the message as a broken link, and the title could cause further confusion down the line with databases, search results, and library catalogs that are programmed to handle assets in specific ways. As a technical protocol, “.com” is code designed to translate between machines and humans.

But, of course, as a cultural and economic term, “.com” has come to stand in for much more than this. “Dot-com” signals a particular industrial configuration: the rise of internet companies in the 1990s that conducted most of their business on the internet, the perceived market opportunities and venture-capital funding that internet startups were able to attract, and the particular logics and strategies (e.g., e-commerce companies that operate at a loss to “get big fast” and capture market share) that prevailed in different moments within the dot-com bubble. At the same time, the dot-com business model cannot be understood apart from what Nigel Thrift calls “the material-rhetorical flourish” of the New Economy, in which passion for the market was also framed by the financial metrics for measuring it, thus producing and disciplining this assemblage of people, technologies, markets, and knowledge practices at the same time. “Dot-com” both designated an industrial struc-
ture and actually produced a mode of valuation. Financial scholars, for example, have documented a striking positive stock-price reaction to the announcement of corporate name changes adding “.com” in 1998 and 1999, a phenomenon that was termed the “dot-com effect.”8 As a technology, industry structure, financial vehicle, and rhetoric of hype, “dot-com” recalls Foucault’s notion of discourse as encompassing more than just talk: discourses have a reciprocal function as “practices that systematically form the objects of which they speak.”9

Dot-com discourse is intensified through larger social, cultural, economic, and political forces and the everyday practices that inform how companies attract capital and workers. The financial culture of venture capital, for example, supported and reinforced particular entrepreneurial logics and expressions. This includes, as Gina Neff has argued, a style of everyday entrepreneurship that she calls “venture labor,” an attitude toward risk management in which ordinary employees acted like financial investors in their jobs, investing time, energy, and personal resources in often short-term, temporary, project-based work. In this culture of high-risk, high-reward, risk became glorified, even cool, as the meaning of economic risk shifted from a collective responsibility to an individual one.10 As the image of technological and creative work associated with the internet attracted cultural capital, “dot-com” could be understood as an attitude toward risk, as well as a lifestyle and identity. Media accounts of internet workers in New York’s Silicon Alley routinely reference “dot-com kids,” who were typically characterized as rich, youthful, energetic, and overconfident.11

More than just describing a zeitgeist of the 1990s, “dot-com” articulates an assemblage of relations into a cultural formation that is both material and semiotic. A concept that emerged from the philosophy of Gilles Deleuze and Félix Guattari, “assemblages” are groups of heterogeneous arrangements that combine and interact and, through these relations, carve a territory.12 An assemblage is not a static collection of fixed things assembled once and for all but a dynamic process, transformative, contingent, and always in motion. It offers a way to talk about a complex of very different elements—objects, events, statements, actions, signs, technologies, sensations, bodies, passions, and so on—that enter into relation and manage to hang together for a time. Something cohered that was called “dot-com.”
Just as “dot-com” is meant to evoke more than simply an internet startup, “design” is treated as an important keyword that points to much more than aesthetics, graphical layout, visual style, or the hypertext markup language (HTML) used to author web pages. Most books about web design are didactic, intended to teach the necessary technical skills, best practices, and standards that are required to create websites. Dot-Com Design positions “design” much more broadly. Indeed, the question of what “design” even means is at the very heart of this book. Design figures as both a critical concept for assembling this historical account of the web and the form it takes in the arrangement of chapters carved along the stages of a speculative bubble. In other words, I want to invite readers to remember that this is a book about design as well as a designed book.

As a term that dates back to the sixteenth century, “design” means to mark out, contrive, plot, intend, execute. It is simultaneously a process and an object, a concept and its material expression. In this relation between the verb and noun forms, “design” collapses the distinctions between ideas and things, agency and structure, change and stability, yet nevertheless depends on carving out boundaries. By giving form and order, design “regulates”: it organizes bodies, perception, affective experience, and the spatial and temporal rhythms that orient us in the world (we might think of the design of city traffic systems, home theaters, or Twitter feeds). Although translated as “assemblage” in English, the French term used by Deleuze and Guattari is agencement, which means “layout, put together, combine, fitting.” It is closely associated with design in that it retains the dual meaning of the arrangement of things and the act of arranging. John Phillips explains that unlike “assemblage,” which tends to connote the finished structure of assembled elements, agencement prioritizes neither the parts nor the state they compose but the connections between them. It is a concept that emphasizes agency as well as the mutual play of contingency and structure, organization and change. In this way, design as agencement offers a conceptual grip on the heterogeneous and flexible arrangements—the dense and layered connections among people, software, workplaces, proposals, contracts, skills—that enact the everyday practices of web design work. Although graphic designers or front-end interface developers are typically designated as “designers” in web design, this book intentionally positions a
range of different stakeholders, from programmers to users, within the realm of design.

Since design is simultaneously a process and an object, web design histories must account not only for the actual websites and software applications produced but also for the circumstances of problem solving, the stakes and stakeholders involved, and the changing values and assumptions that inform how “design” is conceived within particular historical contexts. As the materialization of social practice, design inscribes the reigning belief systems and knowledge structures of the time. Modern design, for example, as it developed between the 1920s and the 1950s, was premised as a rational project concerned with progress and objectivity. The typographer William Addison Dwiggins (who coined the term “graphic design” in 1922) wrote a book called *Layout in Advertising* (1928), which concluded, “Modernism is not a system of design—it is a state of mind. It is a natural and wholesome reaction against an overdose of traditionalism.”

This modern sensibility rejected ornament and decoration as forces that hindered progress, privileging instead a “neutral” and “universal” mode of communication. For the progenitors of the International Style, who had studied typography at the Bauhaus school in Germany, the aim for objective clarity corresponded to modernist social and political ideals that regarded nationalistic expressions as exclusive and unwelcome impediments to international relations and universal harmony. Grid design and simple sans serif typeforms were considered objective, clear, and impersonal, serving international communication in a way that upheld the progressive and socially improving values of modernity. These values are often hidden or obscured by the very design process that naturalizes these assumptions. In tracing the drive toward functional “invisibility” that characterized midcentury modern domestic design, Lynn Spigel argues that “the attempt to make objects disappear also often winds up hiding the social relations and belief systems upon which environments are built and through which social power (in this case the uneven social relations of gender, class, and race) is organized and produced.”

Over the past few decades, design studies has shifted from an almost exclusive focus on the object or designed artifact to understanding design more broadly as a historically situated mode of inquiry. New ways of thinking about design, particularly in the design of human-computer
interaction (HCI), reject the binary divisions opposing designer/user, production/consumption, and human/machine. A key moment was the publication of Lucy Suchman’s *Plans and Situated Actions* (1987), which upended the dominant problem/solution communication model that predominated in systems design at the time. Suchman was an anthropologist researcher at Xerox PARC (now PARC), and her studies of user interaction revealed that users did not approach technical systems with a discrete set of plans and goals (an assumption built into the design process) but instead improvised within the local situated context where interaction took place. Interrogating the deeply ingrained and overlapping “boundary problems” between “insiders” and “outsiders,” “expert designers” and “novice end-users,” that structured how design was conceived and practiced, Suchman proposed a model of design that reconfigured these boundaries by contextualizing use and incorporating the knowledge of users into the design process.20

Describing “the social life of design,” the cultural anthropologist Arjun Appadurai argues that design is only partly a specialist activity and is better seen as a fundamental human capacity and a primary source of social order. Daily life, he suggests, is an outcome of design, a process of the everyday deployment of our energies, our resources, our ideas, and our bodies so as to accomplish results that meet our expectations.21 Uncleaved from a purely professional context of experts, the notion of “design thinking”—figured as a user-centered, prototype-driven, iterative process of problem solving—has more recently been figured as a model for reinvigorating scholarship, rethinking public policy, and reinventing business.22 As Lucy Kimball explains, “The main idea is that the ways professional designers problem-solve is of value to firms trying to innovate and to societies trying to make change happen.”23 Today, the concepts, language, and methods of design have expanded far beyond the fields of professional design or even business and management to infiltrate anthropology, healthcare, government, military, and public-service organizations. As Kimball puts it, design “is taking a new place on the world stage.”24

What is it about design that it has become so culturally salient today? As companies such as Apple have made quite clear, design has high cultural value, both as a status symbol and as a way of enmeshing people, media, and devices under the banner of “lifestyle.” Design’s
value is linked with its concern with imagining the future. For “innovators,” design thinking offers a promise of creative intervention that can be successfully deployed to produce desired outcomes. In this vein, Richard Buchanan has suggested that all products of design, whether digital or analog, tangible or intangible, “are vivid arguments about how we should lead our lives.” Critics of “design thinking” charge that the phrase was offered as an overly neat model that packaged the future within a process format that fit within the organizational logic of the corporate world. Indeed, as Suchman argues, design as a road to “innovation” prioritizes an orientation to change that “is embedded within a broader cultural imaginary that posits a world that is always lagging, always in need of being brought up to date through the intercessions of those trained to shape it: a world, in sum, in need of design.”

Although design is future oriented, it often materializes normative assumptions and reproduces the status quo of the time. Some designers have proposed using design as a way to counter these tendencies. Anthony Dunne coined the term “critical design” in the late 1990s as a speculative practice that could challenge the narrow “preconceptions and givens about the role products play in everyday life.” Invested in the ethics of design practice, critical design aims to expose the hidden agendas, assumptions, and values that are inscribed in designed things. In Speculative Everything: Design, Fiction, and Social Dreaming (2013), Dunne and Fiona Raby propose a critical design approach built on speculative prototyping: design is “a means of speculating about how things could be,” a way to imagine alternative or more equitable futures. However, it is worth remembering, as Carl DiSalvo points out, that even as speculative design tries to propose alternative futures, like any design it is nonetheless grounded in the present, and it too replicates the (often normative) assumptions, styles, and themes of the moment. Speculative design projects offer us a view of the future from the present, “reinterpreted and in relief.”

Dot-Com Design reimagines speculation and design by examining the era of web design in the 1990s dot-com bubble as a series of contests and collaborations to conceive the boundaries of a new digitally networked future. Throughout this book, dot-com and design are framed within a larger historical context that situates cultural production and financial markets in visual and imaginative terms that alternately uphold and
transgress boundaries around masculinity and femininity, class and status mobility, knowledge and intuition, the global and the local. Struggles over expertise take place through the policing of rules in a climate sustained by the paradoxical promise that “the old rules no longer apply.” In this way, the book critically attends to the ways that web design was enmeshed in systems of power that generated rules for regulating conduct and social practices; this involved right and wrong ways to think about the future, the market, the role of technology, and the construction of expertise within this conjuncture of social, economic, cultural, and industrial pressures.

Web Design Imagines the Future

Positioning design and speculation within a productive tension, this book examines how web design worked during this period as a site in which visions of the future were offered, championed, and contested. How did the ongoing struggles over aesthetics and the cultural economy of design impact the ways people imagined the web’s potential? These questions are explored through two lines of inquiry: the connections between representation and collective imagination and the relationship between speculation and visuality.

First, the design of the web involved not just navigation schemes, hyperlinks, information architecture, e-commerce-powered databases, animated gifs, and elaborate Flash intros but also the production of a new imagined space, a mediated realm that, according to accounts by early web users, felt new, different, and strange and seemed to hold the potential to upend deep-rooted hierarchies. Anthropological literature that examines the concept of social imaginaries and the collective imagination can help to explore this idea more closely. As the Today Show clip aptly demonstrates, “getting” the internet or the web—understanding what it means, what future potential it holds, and how it brings a new kind of information space into existence—was no easy feat for those who had never encountered it before. Evaluating the context in which a shared meaning of the web first began to cohere (chapter 1) and attending to descriptions of early users’ experiences of navigating the web, archiving, evaluating, and sharing links to “cool sites” (chapter 2), involves looking beyond websites themselves to the links between people and
mediated representations that helped a collective imagination materialize online.

Distinguishing between the realm of fantasy and that of imagination, Appadurai suggests that “fantasy carries with it the inescapable connotation of thought divorced from projects and action.” It sounds private, individualistic, the stuff of daydreams. The imagination, on the other hand, “has a projective sense about it, the sense of being a prelude to some sort of expression, whether aesthetic or otherwise.” In this way, Appadurai portrays the imagination as a “collective social fact” realized through the formation of “solidarities,” communities formed through the conditions of collective reading, criticism, and pleasure: “a group that begins to imagine and feel things together.” For Appadurai, the role of the global imagination was transformed in the last few decades of the twentieth century, thanks to new patterns involving the twin forces of mass migration and mass media. In this historical context, communities are capable of moving from shared imagination to collective action. Shared images, shared media landscapes, the plurality of imagined worlds become the “staging ground for action,” not merely a means of escape.

In this account of the early commercial web, collective imagination yokes together discourses of what cyberspace means, how it looks and feels, how it is experienced on a daily basis, and what the future portends; within this organized field of social practice, speculation meets web design. Early metaphors of cyberspace as an electronic frontier, the Wild West of information space driven by “pioneer settlers” who can tolerate the “austerity of its savage computer interfaces,” were not just in the minds of a “few hardy technologists,” as Mitchell Kapor and John Perry Barlow memorably described “the Net” in 1990. Rather, these metaphors and ways of imagining the future of the internet were very much bound up in social realities: labor, production practices, and the social and technical protocols of computer-mediated communication and daily rituals such as visiting the “Cool Site of the Day;” all worked in the service of creating a series of cultural expectations—a shared imagination—that was, in fact, quite real. Web design’s social imaginary reproduces itself in the design of the web, in the conceptual models of authoring software, and in the design tutorials, link collections, and demos circulated through online forums and communities. This shared imagination is somewhat akin to the internet geek culture analyzed by Chris Kelty in
Two Bits: The Cultural Significance of Free Software. Kelty conceptualizes the set of practices connected to Free Software as a “recursive public,” a commons in which geeks build, modify, and maintain the very technological conditions of their own making. What makes this possible, Kelty claims, is a shared imagination, “a shared set of ideas about how things fit together in the world.”

Likewise, the graphical space where the user meets the web functions as an ideal arena to display the visual manifestation of hopes and dreams for the future while, at the same time, web design actively produces this future in material form.

Speculation and Visuality

Accounts of financial speculation that trigger manic episodes of madness and hysteria have enjoyed popularity since Charles Mackay’s Extraordinary Delusions and the Madness of Crowds (1841) documented the history of Dutch tulip mania in the early seventeenth century and the South Sea Company bubble of the early eighteenth century. Today, economic sociologists and financial historians continue to examine the history of how financial markets gained legitimacy in the nineteenth century and how discourses of speculation assumed importance in popular culture at the turn of the twentieth century. The deep, enduring connections between visuality and speculation, however, have received surprisingly little attention.

Typically associated with the buying and selling of stocks to profit by a rise or fall in their market value, the word “speculation” is derived from the Latin verb specere, meaning “to look or see,” and is therefore bound up with visuality and the faculty of sight. It calls up not just images of investing but lavish displays of excess and spectacular appeals to the eye. The etymology of the term also references a deeper kind of seeing that entails profound reflection on the world, a contemplation that engages a hypothetical view of the future. The economic sociologist Alex Preda notes that financial speculators in the eighteenth century were socially marginalized; they were thought to undermine the government, divert productive resources, and compromise the moral order by engaging in “radically unknowable” practices that fell outside acceptable forms of inquiry and knowledge structures of the time. Financial speculation was condemned, in other words, not because it was risky but because it
was incalculable. Speculation was a practice linked to moral corruption because it did not obey the laws of nature or human reason. But by the second half of the nineteenth century, a distinction was being drawn between gambling and speculation in an effort to make markets more “democratic” and hence open to middle-class family men.

A key figure in this effort was Henri Lefèvre de Châteaudun, a stock-market operator and actuary who developed a graphical representation for analyzing stock-market operations in the 1870s. Lefèvre saw financial markets as a vehicle for achieving a more just, egalitarian society. For Lefèvre, “the stock exchange was the central organ of the social body.”

Believing that financial investments would improve the lives of the working class, attenuate class distinctions, resolve social tensions, and ensure social equality, Lefèvre (along with others, such as the Parisian broker Jules Regnault) contributed to a vernacular “science of financial investments.” While academic economists of the time favored abstract models as a way to try to reduce uncertainty about prices, speculators such as Lefèvre considered these causal explanations of price movements unnecessary; he set out instead to build a science of investments that was grounded in observation and calculation. He rejected abstract mathematics in favor of the concrete mathematics that structure the visible world, as used in mechanics and geometry.

Lefèvre proclaimed,

The public does not need definitions and formulas; it needs images that are fixed on its mind [esprit], and with the help of which it can direct its actions. Images are the most powerful auxiliary of judgment; thus, whatever properties of a geometric figure result from its definition and are implicitly contained within, it would be almost impossible to extract them without the help of the eyes, that is, of images, in order to help the mind. . . . Especially in the case of stock exchange operations, where the developments are so rapid, where the decisions must sometimes be so prompt, it matters if one has in his mind clear images instead of more or less confused formulas.

Here we find an account that situates speculation firmly within the realm of visuality. From seeing comes action, since “images are the most powerful auxiliary of judgment.” In this case, Lefèvre’s solution was to develop the first graphical representations—still in common use,
according to Franck Jovanovic—that could visualize individual investor decisions in a space of coordinates.\textsuperscript{44} By showing how options contracts could be visualized within this graphical space of horizontal and vertical axes, Lefèvre pushed for greater economic efficiency, reducing response time to market fluctuations and speeding up the flow of transactions.\textsuperscript{45}

Over a century later, visualizing the abstract space of the market continues to be the preferred method for making financial decisions. Of course, Lefèvre’s graphical instruments were a way to provide instant visibility of the outcome of complex stock-market operations; they functioned as investment instruments that guaranteed a space for financial nonspecialists to participate in the business of speculation.\textsuperscript{46} Here, I suggest that the graphical web also played a crucial role in helping investors—both financial professionals and the speculating public—visualize the web’s potential and endeavor to forecast the future. These new tools for visualizing the market in the late nineteenth century or visualizing the web in the late twentieth, however, could not accomplish the necessary work of cultural legitimation through images alone. In both cases, visual technologies were accompanied by an elaborate set of rules that aimed to discipline, transform, and rationalize the behavior of connected actors.

In the nineteenth century, the work of integrating finance into the accepted order of knowledge would require untangling the association between speculation as investment and the socially unpalatable practice of gambling. As part of this effort, literature targeting middle-class investors swelled throughout the second half of the nineteenth century: brokerage firms, newspapers, speculators, and railway engineers all published manuals, newsletters, and how-to books aimed to educate the general public on the science of investing. This slew of how-to material, Preda points out, reveals the great effort put into representing finance to the public and redefining its activities as legitimate.\textsuperscript{47} Speculation alone does not necessarily lead to a financial bubble. In fact, speculative objects frequently appear (and disappear) in financial markets without creating a crisis or a panic.\textsuperscript{48} Therefore, presenting financial speculation as a science of investing required developing a new set of rules for financial actions, rules that set out to rationalize financial behavior as analogous to scientific behavior: “Lack of emotions, capacity of self-control, continuous study of the markets, and monitoring of the joint-stock
companies were represented as fundamental conditions of successful investments. In the first place, the notion of market behavior was stripped of its emotional, unforeseeable side, of aspects like panic, or hysteria: principles and cold blood, not passions, govern the Stock Exchange. This did not mean that financial panics did not happen or that they weren’t anymore an object of reflection—quite the contrary. But panicky behavior could now be examined and explained in thoroughly rational terms as lack of self-control.” Feminist economists have long critiqued the construction of neutrality and the disembodied ideal speculator for universalizing masculine subjectivity. As Urs Stäheli points out, this ideal speculator is constructed in gender-specific ways according to an individualistic model of complete self-mastery. “He lacks all emotion, and instead becomes a reflexive observer who speculates with an iron will”; the “market crowd,” meanwhile, seduced into “bad” speculation, succumbs to irrational, hysterical, emotional, and volatile impulses. The cultural hierarchies embedded in discourses of legitimation are well documented and reach far beyond the economic sphere, as Pierre Bourdieu prominently points out in Distinction: A Social Critique of the Judgement of Taste. We can see similar discourses surface around food, clothes, cars, art, media, and literature—any cultural form where taste functions to reproduce dominant social structures. In Legitimating Television, Michael Newman and Elana Levine chart similar discourses in television’s quest for “quality” in the era of media convergence. The cultural respectability that television earned in the twenty-first century, they argue, is built on distancing itself from “ordinary” television, which is articulated to the denigrated, feminized mass audiences of the past. Similar undertones surface in the shifting logics of “good” web design, which was variously deployed to capture, condition, or contain the passions of the market. While some of these transitions can be seen as positive developments that helped institute web standards, address accessibility requirements, and prioritize user experience, the history of the work of disciplining web design is still fraught with troubling power imbalances.

Methods and Sources

As a cultural history of web design, this book does not tackle the applied questions that occupy web practitioners, HCI specialists, and
visual-communication research consultants. I do not ask how we can best realize the full potential of the medium or ask such questions as “what is the most effective way to build a website?” or “what kind of visual practices are most aesthetically pleasing or appealing to web users?” Instead, I follow the discourses that surround the shifting assumptions and provisional answers attached to these inquiries.

By cataloging and analyzing examples of web design produced in different moments of the dot-com bubble, I explore how and why dominant discourses of web aesthetics emerged, stabilized, and changed. The cultural forms, styles, and modes of production that I identify—brochureware, “cool sites,” modular design, tables, grids, whitespace, print aesthetics, navigation bars, e-commerce, Flash intros, usability testing, and the like—are neither naïve attempts by early producers to create the early web nor chronological stepping stones that led the way to “better” design. Instead, I argue, these practices were the result of specific industrial conditions that served a crucial role for commercial organizations and skilled laborers testing and navigating an ill-defined territory between innovation and the familiar social norms of mediated culture.

While the work of web design in the 1990s was a truly global phenomenon, this book focuses largely on US web culture because this is where interactive advertising began and because there is little scholarship that attempts to map these early power struggles and hegemonic practices. Indeed, we need many more histories that detail web and internet production and use outside of a US/European framework. There are many different stories we could tell about the rise of the commercial web: we could track the policy initiatives of the early 1990s that led to the privatization of the internet backbone, the ways that businesses responded to the commercial potential of the internet, the developing industrial logics that inform data-driven marketing, or the technical protocols and coding practices that enabled the internet to function as an accessible multimedia publication platform. While the account presented here does address some of these topics, Dot-Com Design situates stories of web design alongside the awakening and reshaping of collective new media imaginations—the yoking together of images of what cyberspace means, how it looks and feels, how it is produced and experienced on a daily basis, and what new prospects it holds—to his-
toricize the industrial and aesthetic shifts that intersect with a growing stock-market bubble.

Arguably, this book would have been very difficult to write without the Internet Archive and the WayBack Machine. One of the largest and most prominent archives of born-digital materials, the Internet Archive was founded by the computer engineer Brewster Kahle to preserve the internet’s digital cultural heritage. It includes both donated digitized collections and a huge database of archived websites dating to fall 1996, assembled with the help of automated “web crawler” software programmed to roam publicly accessible web pages by following links and saving copies of files encountered as the bot completes a “snapshot” of the public web. These files are stored on massive computer drives and made accessible to the public through the WayBack Machine, a database that allows users to enter the Uniform Resource Locator (URL) of a page and view the series of copies that the crawler harvested. No doubt it is a tremendous resource. However, those of us who rely on web archives to conduct historical research need to understand the peculiar nature of the web archive and the significant implications such archives pose for web historiography.

As internet researchers who study search engines and algorithms have convincingly argued, technologies that deliver our search results and offer recommendations are not neutral servants of the network but designed systems that come embedded with politics and values. Web archives, even open and publicly available resources such as the Internet Archive, are no different. Despite its ambitious tagline reminiscent of the Enlightenment encyclopedic ideal—“Universal access to all knowledge”—the Internet Archive, like all archives, has its biases and omissions.

Despite the designation of web archives as “archives,” they are fundamentally different from the institutional archives that catalog donated materials into folders or box numbers, and they must be triangulated with a broad assortment of supporting materials. The research for this book draws on material from institutional archives and an extensive corpus of material I collected over a period of four years that covers the first decade of (mostly US and British) web design. This includes a decade of popular and trade-press articles, collections from .Net magazine, Cre@te Online, the annual Communication Arts interactive awards
and judges’ commentaries, screenshots and video of websites and demos shared with me by designers, prospectus reports filed with the Securities and Exchange Commission in anticipation of a company’s initial public offering (IPO), numerous versions of early web-authoring software, and over a hundred production manuals and “best of the web” design annuals, many of which include CD-ROMs with screenshots, site mock-ups, storyboards, and video interviews. I screened about twenty hours of televised news reports from the Vanderbilt Television News Archive and consulted the Business Plan Archive at the University of Maryland’s Robert H. Smith School of Business for business plans, presentations, and correspondence materials from failed dot-coms, screenings of the annual Webby Awards, and programs such as the Computer Chronicles and Net Café, which cover computing and web industries during the 1990s. I also draw on twenty-six in-depth, semistructured interviews (each lasting between thirty minutes and two hours) with practitioners who worked in web industries or created web content during the dot-com era.

Organizational Structure and Chapter Overview

To attend to the ways that industrial and aesthetic shifts intersect with economic ones, Dot-Com Design organizes these developments through the monetary theorist Hyman Minsky’s model of a classic speculative bubble. Minsky held that the financial system under capitalism is unstable, fragile, and prone to crisis; he was known for being “particularly pessimistic, even lugubrious, in his emphasis on the fragility of the monetary system and its propensity to disaster.”59 Minsky’s “financial instability hypothesis” helped inform the work of the economic historian Charles Kindleberger, who used Minsky’s framework to provide a comprehensive history of financial crises, stretching back to the Dutch Tulip Bulb bubble of 1636.

In the Minsky-Kindleberger model, speculative bubbles may take on different patterns but typically share a number of common features in the development of a financial crisis. The chapters that follow are organized around five such stages—displacement, boom, expansion, euphoria, and bust—each with its own internal logic.60 By mapping shifts in design practices and organizational structures alongside these stages, I
aim both to provide a more detailed historical context and to examine
the connections between market activity and cultural production. *Dot-
Com Design* uses these moments of a speculative bubble as a periodization
scheme and a heuristic for chapter organization. In the graph in
figure I.2, I map these stages against the NASDAQ composite, the US
stock index dominated by technology startups and seen as the main in-
dicator of the dot-com economy. The graph serves as a visual snapshot
of the nexus of design and cultural economies addressed in the book.

Chapters 1 and 2 cover the first stage, displacement, which begins
when something changes people’s expectations about the future. Chap-
ter 1 offers a conjunctural analysis of the social, political, economic, and
institutional context that paved the way for a privatized commercial in-
ternet in the early 1990s. Focusing largely on developments that took
place between 1993 and 1994, this chapter examines how several ideo-
logical contradictions congealed in such a way to give shape to a shared
new media imagination. It lays the groundwork for understanding the
roots of dot-com speculation by looking both to crucial failures (Gopher,
the information superhighway, virtual reality) and to successes (the
World Wide Web, Mosaic, *Wired* magazine) and argues that these de-
velopments helped assemble a common vision of the interactive future.
Chapter 2 looks to the popular discourse of “cool sites” and “cool links”
that formed early evaluative criteria for talking about “quality” web ex-
periences. Far from some hollow or subjective way of understanding the
early web, I argue that “cool” served as the modality of displacement;
it served as a semantic figure that gestured toward a new structure of
feeling. I argue that the seemingly vague values associated with “cool”—
useful, fun, and participatory—were operationalized by some of the first
commercial websites seeking to make a splash online while avoiding a
potential backlash from the notoriously antispam internet community.

Chapter 3 examines a series of power struggles that took place along-
side the creation of a web industry during the boom stage, which began
with the extraordinary attention the web commanded in the popular
media after the Netscape IPO in August 1995. Focusing on the efforts
of established media professionals (editors, photojournalists, magazine
publishers, and graphic designers) to stake an early claim in web pro-
duction, I offer a case study of two related projects that received sig-
nificant attention in 1996—the world-in-a-day internet spectacular 24
Hours in Cyberspace and the connected authoring product NetObjects Fusion—as a means to examine how particular conceptions of “social media,” “user-generated content,” and “real-time” were built into technologies for producing the web.

As the speculative bubble expanded from boom to euphoria stage following Federal Reserve chairman Alan Greenspan's policy response to the Asian financial crisis in 1998, the stock market soared alongside the astronomical valuations of fledgling e-commerce companies. Chapter 4 examines how the dominant discourse surrounding the web's industrial logic shifted from one of content creation to one of transactions. As the idea of the “New Economy” became articulated to e-commerce, the organizational structures of web industries were reoriented to tap into the capital and skills that were linked with these new dot-coms. The resulting wave of mergers and acquisitions within the web development sector created massive web consultancies striving to become a “one-stop shop” that could deliver all of the diverse needs that e-commerce solutions required. I analyze how creatives responded to this climate of heavy consolidation and industry restructuring by developing creative technical expertise in interactive multimedia software such as Flash. I argue that freelance designers and small boutiques used Flash to win back some of the power that had been ceded to the mega-agencies. By presenting an alternative vision of the internet that was grounded in experimentation, sensory experience, and storytelling, Flash designers challenged the transactional view of the web that was associated with e-commerce and positioned themselves as auteurs capable of delivering engaging, high-quality, cutting-edge websites.

After the crash of the stock market in April 2000, however, Flash websites came under fire for their stylistic excess. By examining discourses of reform that emerged in the wake of the dot-com bust, chapter 5 analyzes how the gendered disciplining of Flash and its visual expression in the interface prompted a thorough revision of web practice in which critiques of the “hotshot designer” and the “gratuitous” Flash site gave way to a new discourse of usability, which featured the user instead of the designer. I analyze how these critiques played out in two arenas. First, by examining the redesign of the Macromedia Flash MX authoring software and the introduction of new Flash programming environments such as Flex, I explore how the usability discourse made its way into
the application itself. As the Macromedia development team worked to reposition the software, changes to the authoring environment and the surrounding tutorials, help documents, and sample code register a shift from being an animation and design tool to a platform for building user-centered, rich internet applications. Second, I examine how the tensions between usability and experience were expressed in a new approach: UX, or user-experience design, which emerged as the new dominant design paradigm of the early twenty-first century.

What was it like to go online in the 1990s? Who was paid to develop commercial content for brands and other organizations? How was the industry configured? Who decided what a “professional” website looked like, who it was for, what users ought to do online? How were “quality” websites evaluated? In short, this book is interested not just in how the web was designed but also in how it was conceived, imagined, and experienced by users and practitioners in different historical moments. At the same time, it aims to account for the contests and collaborations, the struggles for power and legitimacy, and the support or rejection of various rules defining the right and wrong ways to make the web that infused web discourse during this period of rising speculation in internet stocks. It examines how techniques for validating quality, value, skill, and expertise were also bound up with cultural hierarchies that are continually used to discipline web practices. Finally, it considers how these discourses have become codified as industry standards and “best practice” guidelines reproduced in the production logics of web-authoring software, where they are used in turn to reproduce particular ideological meanings about the social life of the web.