# Banner Ad Funding of the Early Internet: The Transformation of Advertising Into the Digital Age

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## Introduction

October 27, 2014 marked the 20th year anniversary of the AT&T banner ad, the first banner ad introduced by the commercial web magazine, Hotwired.[1] On this day, the Internet was flooded with podcasts, articles, and reflective reviews of the banner ad, the relic of yesteryear, and its relevance today. Very few articles praise the birth of the banner ad. Journalists who now have the pivotal advantage of examining history retrospectively have freely offered their take on the significance of the banner ads on the evolution of the Internet. *New York Times* technology columnist Farhad Manjo argues "their [banner ads] success birthed a monster that went on to swallow the web whole and has created two decades of havoc."[2] This negative view of the banner ad is not uncommon among journalists today. Similarly, John Brownlee describes banner ads as every junior designer's worst nightmare: "That rectangular box is a millennial now. No wonder we hate it."[3] While journalists and internet users today spew forth predominantly negative things about banner ads, as a historian I will go back to the moment of their creation in the 1990s and recreate the import of this groundbreaking innovation at that time. Despite all the premature burials and eulogies about the death of the banner ad, the banner ad is still prevalent today and serves as a continued major source of revenue for

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[1] Although the AT&T banner ad is widely believed to be the first banner ad, banner ads from Club Med, Volvo and Zima were also introduced at the same time. AT&T is only remembered as the first, most likely for its well-known "You will" campaign.

[2] Farhad Manjoo, "Fall of the Banner Ad: The Monster That Swallowed the Web," *The New York Times,* November 5, 2014. http://www.nytimes.com/2014/11/06/technology/personaltech/banner-ads-the-monsters-that-swallowed-the-web.html.

[3] John Brownlee, "An Ode To Banner Ads, Every Junior Designer's Worst Nightmare," *Co.Design*http://www.fastcodesign.com/3037657/an-ode-to-banner-ads every-junior-designers worst-nightmare.

many companies. Nonetheless, the relative effectiveness and success of banner ads continues to be debated.

Surprisingly, there were almost no headlines or articles about banner when they first appeared on the Web in 1994.[4] I will discuss how internet users in the 1990s viewed these banner ads, their comments and observations, what these conversations saw and pointedly what they missed, in order to gain a perspective on the meaning of the rise and the fated fall of banner ads. Current day Web pundits comment that the creation of Google Adwords in 2000 was a success because unlike banner ads, Google Adwords sold text ads based only on search engines, which enables them to tailor the creation of their ads.

As technology changes, the manner by which consumers interact also changes. According to Dan Steinbock, because the Web is always changing, "the only way to maintain an advantage is to continue to stay on the edge of the technology curve."[5] This consideration must be kept in mind when analyzing secondary sources reviewing case studies and statistics demonstrating the effectiveness of banner ads in the 1990s. Unlike the present day journalists who retrospectively study the effectiveness of banner ads, I will discuss the role banner ads played in the upward trajectory of the Internet's evolution when they were first introduced in the 1990s and how they spurred an Internet revolution by allowing companies to rapidly expand their presence across the Web.

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[4] I searched Wired Archives, the Factiva database, as well as other news outlets, and the first reference to the online banner ad was published on October 27, 1994; "Club Med Rockets Along the Information Highway via Hotwired; Worldwide Access to the Club's Vital Statistics Available 24 Hours," *PR Newswire,* October 27, 1994, http://global.factiva.com/redir/default.aspx?P=sa&an=prn0000020011102dqar0026z&ca=a&ep=ASE.

[5] Dan Steinbock, *The Birth of Internet Marketing Communications* (Westport, Conn: Quorum, 1999), 134.

A critical examination of the historical background of the Web is needed in order to gain a greater insight of the role of advertising on the Internet. I read several websites such as AdWeek, Techcrunch, and Media Post on a daily basis. Each of these sites discusses different important and critical aspects of the Internet, such as privacy and net neutrality. Advertising on the Internet has changed since the 1990s, but the advertising we know today certainly had a precedent that helped it evolve. The statement that the success of banner ads "birthed a monster" negates the importance of advertising. A story published by Debra Aho Williamson and Alice Z. Cuneo on Advertising Age in 1996 marking the second birthday of the banner ad claimed that although there are clearly shifts in Web advertising (interactive ads, for example) and there are issues to be settled, "everyone is looking to advertising not merely to sustain the medium [Internet] but to save it. Without advertising, Web publishers and all the infrastructure companies go out of business."[6] By critically analyzing the trends and innovation that have occurred throughout the Internet's history, we will be able to better understand how advertising functions today and how it will potentially work in the future.

Before I began my research, I never gave much thought to the significance of a banner ad. After all, the click-through rate of banner ads today is less than 1% (compared to 44% in 1994).[7] My thesis explores the early years of Internet advertising that would not have been made possible without the commercialization and privatization of the Web. The first clickable banner ad introduced by the website Hotwired in 1994 pioneered and

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[6] Debra Aho Williamson and Alice Z. Cuneo, "Web Ads Mark 2nd Birthday with Decisive Issues Ahead. (Cover Story)," *Advertising Age* 67, no 43 (October 21, 1996): 1.

[7] A click-through rate (CTR) is the percentage of individuals who view a Website and click on a specific advertisement that appears on that site. The CTR measures how successful an advertisement is and advertisers are now able to more accurately focus and direct their efforts at reaching consumers more efficiently.

ushered in the transformation of advertising into the digital age. The founding of Google in 1998 was a similarly seminal event, which further turbo charged the dependence of our society on advances in technology.

My thesis will argue that the study of the rise and fall of banner ads offers its own unique insights into the 1990s, a decade defined by globalization as well as the dot-com and telecommunications boom and bust. As a result of globalization and technological innovations that emerged in the 1990s, the success of businesses and the advertising that was there to serve them became irrevocably dependent on their ability to adapt to the inner rhythms and the life force of the Internet. The first clickable banner ad boldly introduced by the website Hotwired in 1994 heralded the transformation of advertising into the digital age.

Historians have yet to devote significant serious attention to this history, but numerous contemporary concerns over privacy, net neutrality, and a potential new Internet bubble underscore the fact that the history of the banner ad is relevant to us today.[8] Although a concrete answer to the exact moment people started criticizing the banner ad is unclear, I argue in Chapter 3 that the fall of the banner ad and the dot-com bubble burst are irrevocably connected. To gain a better understanding of the early history of the Internet and its proliferation since its commercialization, I refer to Thomas Friedman's *The Lexus and the Olive Tree: Understanding Globalization* and *The World Is Flat 3.0: A Brief History of the Twenty-First Century*. Friedman celebrates globalization and analyzes how globalization in the 21st century affected the evolution of

[8] Hardly a day goes by when media companies are not discussing these topics. On March 24, 2015, for example, Bill Maris, president of Google Ventures refers to the 2000 dot-com bubble burst in order to predict whether or not we will experience another bubble. http://techcrunch.com/2015/03/24/tech-bubble-maybe-maybe-not/

the Internet. The term globalization of the Internet indicates that although more people are connected, there is no hierarchy of who is in charge. I will discuss Friedman's theory of "flatteners" in Chapter 1, which he describes as events that have leveled the playing field. I will largely focus on his "flattener" Netscape, which he argues helped globalize and commercialize the Internet as well as trigger the dot-com boom. Friedman's study is not the most authoritative or scholarly study of early Internet history, but his predictions about the globalization of the Internet and its effect on the middle-class residents of developing nations have proved largely accurate.

The identification of the point in history when people began talking about globalization, privatization, and the commercialization of the Internet will help explain how the nature and perception of advertising on the Internet changed from the middle of the 1990s to the advertising we see today. In my research I discovered no significant books have been written on banner advertising. Various scholars have talked about the rise of the Internet as well as the commercialization and privatization. There are no books, however, that explicitly devote their attention to a discussion of banner ads.[9] While several authors in the 1990s overlooked the importance of banner ads or simply ignored their existence, I will argue that banner ads were an extremely important development in Internet history.

The lack of sources on banner ads has proven to be problematic. My research uses existing scholarly literature on separate topics such as early internet history and the

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[9] On the rise of the Internet: Andrew Wheen, *Dot-Dash to Dot.Com: How Modern Telecommunications Evolved from the Telegraph to the Internet*, 2011 edition (New York : Chichester, UK: Springer, 2010).; Robert H. Reid, *Architects of the Web: 1,000 Days That Built the Future of Business,* 1st edition (New York: Wiley, 1997); On privatization and commercialization: U.S. Congress, Office of Technology Assessment, *Innovation and Commercialization of Emerging Technology,* September 1995.

commercialization and privatization of the internet that have shaped banner ads. I will extrapolate in order to demonstrate that banner ads have shaped not only Internet advertising but also the Internet we see today. This is a story about the initial unrealizable expectations of the internet. It is also a story about the epiphany that the internet couldn't do everything. I will relate this story through an examination of the banner ad, for which expectations were so high and the realities were so often negative.

The definitive history of banner ad has yet to be written. The books currently available about the early Internet tend to be celebrations of white, male entrepreneurs, or highly technical manuals about day-to-day advertising.[10] The fact that no one has written a book about banner ads is noteworthy. In the literature on American advertising, Daniel Steinbock's *The Birth of Internet Marketing Communications* is a key work. Steinbock has written an impressive overview of the history of the Internet. He discusses how it evolved and how it affected the way consumers and businesses interacted with each other. Steinbock presents a general overview of online marketing but offers little analysis. His chapter "Ad Banners and Online Communities" reviews how different types of advertising emerged, but he offers very little critique or commentary. Steinbock's chapter helps gain an overall perspective of the history of the Web, but the book reads like a textbook and does not offer many thoughtful insights. He discusses the Internet's impact on advertising, but he does not connect it to the Zeitgeist of the 1990s.

The history of banner ads offers a broad perspective on the Internet. Chapter 1 discusses the globalization, privatization and commercialization of the Internet. The

[10] On hero worship in early Internet history: Robert H. Reid, *Architects of the Web: 1,000 Days That Built the Future of Business,* (New York: Wiley, 1997), Michael Lewis, *The New New Thing: A Silicon Valley Story*, (W. W. Norton & Company, 2014).; On technical day-to-day: John Philip Jones, *Advertising Organizations and Publications: A Resource Guide* (Thousand Oaks, CA: SAGE Publications, Inc., 2000).

Internet was a worldwide platform that removed all geographical boundaries. I discuss the events leading up to the privatization and commercialization of the Internet and the benefits and drawbacks of commercialization viewed by the general public in the 1990s. Arguments have been made against the privatization of the Internet, claiming that it would limit creativity and would not be able to adequately adapt to the influx of information. The expansion of the Internet by private forces nonetheless changed its function and transformed the Internet we know today.

Chapter 2 discusses the rise of banner ads with a particular focus on the AT&T banner ad, which is widely known as the first banner ad released on the Internet. I describe the dot-com boom, which occurred at the same time banner ads began populating the Web, and argue that the dot-com boom was a direct response to the banner ad and the introduction of different advertising models. The commercial Internet was new to the public when the first banner ads appeared on the Web in 1994. It is not clear whether the first banner ads were effective because people clicked on them because they were interested in exploring all-things-web, or because the way they were originally structured as traditional advertisements added to their effectiveness. Most of the relevant primary sources I found on banner ads were from online journals. I found several experimental studies that describe what the public in the mid to late 1990s thought about the impact and effectiveness of banner ads. The review of these sources is incorporated in my discussion of how banner ads evolved and transformed the advertising industry.

Chapter 3 discusses the fall of the banner ad and the dot-com bust. Between 1995 and 2000, venture capitalists did not use traditional metrics that were used for other industries in order to calculate the market value of an internet company. Unlike

traditional advertising such as TV and magazines, there were no standard measurements for the new internet medium.[11] The importance and even relevance of gauges such as profitability and earnings were minimized and frequently dismissed. Investors were advised that the standard metrics applied to all companies were no longer relevant for Internet companies. Investors became careless. Money continued to pour into Internet companies that were not generating enough revenues to cover their expenses and did not have a viable business plan. There was no history of prior transactions for businesses to study in order to base their pricing models. One possible reason banners ads may have a bad reputation is because people associate it with the dot-com bust. Just as there was no standard measure for banner ads, there is no commonly accepted history available today of how the evolution of the banner ad influenced the evolution of the Internet.

Finally, in the Conclusion I discuss the rise of Google, Google Adwords and how the search engines trumped the display ads that we saw in the 1990s. Google's text ads, for example, tracks data-based on search patterns, which enables advertisers to better target their ads. There are national interests in a globalized world, which ties in with Google ads and surveillance. Internet security and hacking have been important issues since the Internet started. The same justifications that were made for opening the Internet for commercial use are also employed when arguing for the necessity to implement a continually evolving and effective surveillance system that would be made possible by preserving net neutrality.

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[11] Alice Hill, "Boom to Bust-Six Deadly Moments That Brought About the Dot-Com Downfall," *Computer Shopper*, June 1, 2011. http://bi.galegroup.com/essentials/article/GALE%7CA73687060/3d791ffc9faff303ddbcb16c8e25db5e?u=columbiau

## Chapter 1: Brave New World— The Globalization, Privatization, and Commercialization of the Web

The Mosaic Web browser was released in 1993. Netscape Navigator was released in 1994. The World Wide Web had officially gone global and was accessible to the public. People from all over the world could communicate in real time. Information could be found and ideas could be exchanged. Different cultures could be observed and new worlds were discoverable to anybody with a computer. A new revolution that had the potential to affect everybody on earth had been set in motion.

American journalist Kurt Andersen fondly remembers the 1990s as a decade of peace, prosperity and order: "Looking back at the final 10 years of the 20th century is grounds for genuine mourning: It was simply the happiest decade of our American lifetimes…Were there real problems in the '90s? Of course. But they weren't obvious, so…we were blissfully ignorant!"[12]

The Internet became accessible to people all over the planet, connecting the world culturally, economically, and politically. In the old order information was power, but now information was democratically available to everyone. Digital technology was on its way to transform the personal and work lives of everyone.

The public was blissfully ignorant because life was technologically simpler in the 1990s. The advancement in Internet development would inevitably lead to complex business and legal issues that were not yet problematic because the evolution of the Internet had not yet occurred. Congressional debates concerning the privatization and

[12] Kurt Andersen, "The Best Decade Ever? The 1990s, Obviously," *The New York Times*, February 6, 2015, http://www.nytimes.com/2015/02/08/opinion/sunday/the-best-decade-ever-the-1990s-obviously.html.

commercialization of the Internet and conflicts of interest between the general public and private interests were yet to be publicized.[13]

## The Globalization, Privatization, and Commercialization of the Web

The globalization, privatization and eventual commercialization of the Internet played a major role in the Internet we know today. The 1990s was a period of globalization. American author Thomas L. Friedman, a well-known advocate of globalization and a *New York Times* columnist on foreign affairs, globalization, and technology, discusses the impact of globalization around the world and defines globalization as:

> The inexorable integration of markets, nation-states and technologies to a degree never witnessed before—in a way that is enabling individuals, corporations and nation-states to reach around the world farther, faster, deeper and cheaper than ever before, and in a way that is enabling the world to reach into individuals, corporations and nation-states farther, faster, deeper, cheaper than ever before[14]

Although the benefits of the Internet and the globalization revolution have not reached everyone equally, Friedman's predictions have been more than justified for wealthy and developed nations.

Technological innovations were a major factor leading to globalization in the 1990s. Globalization refers to the interaction and integration of people from different nations, driven by trade and information technology. Technological innovation played a key role in the globalization of the Internet, connecting people around the world. In 1999, for example, an estimated 60 million host computers on the Internet served around 200

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[13] Brian Kahin, *Commercialization of the Internet Summary Report* (John F. Kennedy School of Government, Harvard University, November 1990), http://www.rfc-editor.org/rfc/rfc1192.txt.
[14] Thomas L. Friedman, *The Lexus and the Olive Tree: Understanding Globalization,* Second Edition, Revised edition (New York: Picador, 2012), 9.

million users in over 200 countries and territories.[15] The Internet is a medium for interaction and collaboration between individuals and computers, regardless of their geographical location.

In the United States, economic success is shaped by innovation, which ultimately shapes commercialization. We think of innovation as the development and application of a new product, process, or service, and commercialization as the attempt to profit from innovation through a firm's expectation that it gains a competitive advantage in the marketplace for the particular product, process, or service. As a result, as innovation improves, so does commercialization.[16]

The Office of Technology Assessment (OTA) was formed in 1972 by the Technology Assessment Act to provide Congress with objective analysis of technical and scientific issues in order to help Congress understand new technologies and its implications. It was overseen by a bipartisan Technology Assessment Board, which consisted of six Senate members (three from each party), six House members (three from each party) and a nonvoting director. The OTA was eventually defunded by Congress in 1995 when the Republicans controlled Congress and sought to cut congressional spending. Other reasons for closing the agency were that it was too slow, and was a middleman between legislators and experts. Although it was defunded, it served as a fundamental resource to Congress. The OTA claimed that the capability of innovation and commercialization of new technologies benefitted the United States in many ways. Not only do novel technologies stimulate the development of new industries, but they

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[15] Robert E. Kahn and Vinton G. Cerf, *What Is The Internet (And What Makes It Work)* (Internet Policy Institute, December 1999).
[16] U.S. Congress, Office of Technology Assessment, *Innovation and Commercialization of Emerging Technology,* September 1995, pp.2.

also help existing industries remain competitive. Therefore, the OTA argued "to capture the full benefit of innovation, the United States must actively commercialize new technologies. Only through commercialization can the nation enjoy the benefits of job and wealth creation. Invention alone is not sufficient."[17] Although the media often questioned the lack of public participation and criticized the OTA for being a political agency, very few disputed that the OTA did exceptional work.[18] The commercialization of the Internet transformed the Internet from a purely educational resource to a global system with access to non-academic information. The commercialization of the Internet demonstrated the United States' ability to adapt to new, constantly changing innovations.

Although the United States was considered a leader in technological innovation, the OTA argued that since the 1970s, the United States faced competition developing and commercializing their new inventions: "many other nations with limited R&D capabilities have become proficient at adopting technologies developed elsewhere and incorporating them into new or improved products, processes and services."[19] In the mid 1990s, the United States could no longer rely on scientific leadership to maintain competitive advantage in the marketplace. Other nations outperformed US firms in some markets because they developed and commercialized new technologies that were initially created in US laboratories by US scientists. The increasing competition in the marketplace further convinced the National Science Foundation (NSF) and other market

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[17] U.S. Congress, Office of Technology Assessment, *Innovation and Commercialization of Emerging Technology*, pp. 5.
[18] Jathan Sadowski, "Office of Technology Assessment: History, Implementation, and Participatory Critique," *Technology in Society* 42 (August 2015): 9-20.
[19] U.S. Congress, Office of Technology Assessment, *Innovation and Commercialization of Emerging Technology,* pp. 1.

and non-market actors that the commercial potential of the Internet was enormous.[20] Although innovation is dependent on the private sector, the government also played a major role nurturing new technological innovations.

The Internet is a network of computer networks.[21] It started as a government and academic research network in 1957 in order to conduct research and develop new technology for the United States military. The United States Department of Defense (DOD) established ARPA (Advanced Research Projects Agency) in order to regain the United States' technical superiority.[22] In October 1969, the United States Defense Advanced Research Projects Agency (DARPA) commissioned ARPANET, which was the first wide-area computer network (backbone). It established a connection between the University of California-Los Angeles, University of California-Santa Barbara, the University of Utah and the Stanford Research Institution, which enabled multiple computers to communicate on a single network. As technology evolved, so did the expectations that the Internet would evolve too. ARPANET used the packet switching concept to interconnect computers, which supported computer communications applications that the telephone's circuit switch technology could not accommodate.[23] It

[20] The NSF is an independent federal agency that supports research and education in science and engineering. Congress signed legislation that created the NSF in 1950; President Harry S. Truman signed that legislation passed by Congress on May 10, 1950.
[21] In 1995, the Federal Network Council (FNC) defined the Internet as a global information system that: (i)is logically linked together by a globally unique address space based on the Internet Protocol (IP) or its subsequent extensions/follow-ons; ii) is able to support communications using the Transmission Control Protocol/IP suite or its subsequent extensions/follow-ons, and/or other IP-compatible protocols; and (iii) provides, uses or makes accessible, either publicly or privately, high level services layered on the communications and related infrastructure described herein.
[22] "Internet History from ARPANET to Broadband." *Congressional Digest* 86, no. 2 (2009): 25.
[23] United States. Congress. Office of Technology Assessment., *Advanced Network Technology*, June 1993.

went public in 1972 with the primary goal of being a vehicle through which information could be exchanged. ARPANET was a catalyst for the foundation of the modern Internet.

The NSF was interested in the impact ARPANET had on computer science and engineering. As a result it funded the Computer Science Network (CSNET) in 1981, which connected universities that were already on ARPANET and those that were not yet connected.[24] NSF built NSFNET, a computer networking system that became the mainstream among research and educational communities in the 1980s. It provided better computer connections among science and education communities and also allowed networks not commissioned by the United States government to connect to NSFNET. The NSF was integral to globalization because it opened the Internet to more users and enabled more network service providers to participate in the new phenomenon. [25]

It is noteworthy that the government that helped create the Internet transferred its power and control over this invaluable creation to the private sector. The Internet started as a government-sponsored backbone network that evolved to also include multiple commercially-owned backbone networks. When the private sector gained control of the Internet, it gained control of a technology that was created with billions of public dollars.[26] The privatization of the Internet meant reshaping the National Science Foundation Network (NSFNET) into the Internet we now know today. In their discussion of the Internet's backbone system, Rajiv C. Shah and Jay P. Kesan argue that "this process affected both the content across the NSFNET as well as the control of the underlying infrastructure. The actual privatization consisted of government shifting from the practice of contracting out a government-subsidized backbone to allowing the market

[24] Kahn and Cerf, "What is the Internet (And What Makes It Work)," 9.
[25] Ibid, 9.
[26] Ibid, 10.

to provide backbone services."[27] Figure 1 shows the role of the NSFNET in connecting regional networks to local networks.

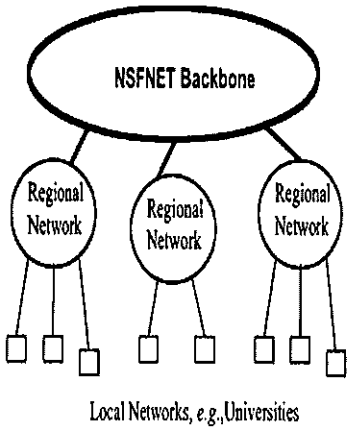


Figure 1. Architecture of the NSFNET

[28] (Original NSFNET Backbone)

Although NSFNET was adequate for educational resources, there was a movement to privatize it. Surprisingly there was little public debate/opposition for the privatization of the Internet. Shah and Kesan argue the privatization of the Internet was inevitable because there was a desire for non-government traffic across the Internet. Telecommunications companies also wanted the opportunity to acquire access to the Internet's infrastructure so that they could market connectivity.[29] In the midst of celebration, however, there were skeptical voices. Technology columnist for the New York Times, Peter H. Lewis, proposed several reasons people were opposed to the privatization of the Internet in 1994. Both advocates for and against the privatization agreed that getting rid of government subsidies would lead to fundamental changes in the economics and use of the Internet. People were worried privatization might isolate users

[27] Rajiv C. Shah and Jay P. Kesan, "The Privatization of the Internet's Backbone Network," 4.
[28] Shah and Kesan, "The Privatization of the Internet's Backbone Network," 5.
[29] Ibid.

and that the private system would not be able to handle the packets of information that would travel through the network.[30] As early as 1994, Jordan Becker, VP of Advanced Network Services warned users that new "new business practices and pricing models are going to have to emerge as the Internet enters this brave new world and becomes self-sufficient."[31] Lewis' article came out three days before the birth of the first banner ad. His concern and warning about privatization became a major problem for banner ads, as discussed in Chapter 2.

Advanced Network Services (ANS) was created in September 1990 as a subcontractor to operate the NSFNET background. NSFNET connected hundreds of research centers and universities and managed links to other countries. These networks were collectively known as the Internet.[32] The net network (ANSNet) shared the same infrastructure as the NSFNET, which enabled ANS to commercially connect to NSFNET. In his 1991 *New York Times* article about monopoly fears over data networks, John Markoff argues many private vendors were critical of ANS because they argued that the ANS "uses its favored position to squeeze them out of the data-transmission market by establishing rules that make it difficult to connect to NSFnet."[33] Additionally, competitors have complained that due to its arrangement with the government, ANS would have an advantage and would be able to compete unfairly. This criticism led to congressional hearings against the management of NSFNET, which found several

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[30] Peter H. Lewis, "U.S. Begins Privatizing Internet's Operations," *The New York Times*, October 24, 1994, sec. Business, http://www.nytimes.com/1994/10/24/business/us-begins-privatizing-internet-s-operations.html.
[31] Ibid.
[32] John Markoff, "Data Network Raises Monopoly Fear," *The New York Times,* December 19, 1991, sec. Business. Business, http://www.nytimes.com/1991/12/19/business/data-network-raises-monopoly-fear.html.
[33] Markoff, "Data Network Raises Monopoly Fear."

problems leading to the removal of NSF's Accepted Use Policy (AUP), which originally only allowed science and educational research, and allowed commercial traffic across the NSFNET. The bill was later amended to allow the commercial use of the network only if it increased the network's utility for research and education. In late 1992, the new AUP allowed the private sector the use of the network if it indirectly benefitted research and education, which ultimately led to more growth for NSFNET.

The federal government did not initially allow organizations to connect to the Internet for commercial activity. However, by 1988, it was evident that the Internet's growth and use in the business sector was prohibited by this restriction.[34] Vinton Cerf was an Internet pioneer who pushed for the first official commercial use of the NSFNET in 1988. The Corporation for National Research Initiatives (CNRI) wanted permission from the Federal Networking Council (FNC) to interconnect the commercial MCI Mail system to the Internet as an experiment. Shah and Kesan discuss how "the stated rationale was that these commercial providers would enhance research and educational uses by allowing researchers to communicate with more people."[35] It became clear that the Internet's growth was inhibited by the restriction of commercial activities. In response to pressure, and support from Rick Boucher, the chairman of the Science Subcommittee of the House Committee on Science, Space, and Technology, Congress helped push through legislation that allowed the NSF to open NSFNET for commercial use. In November 1992, President George H.W. Bush signed legislation that modified NSF's AUP to end direct government subsidies and allow commercial use of the Internet. The National Information Infrastructure: Agenda for Action of 1993 (NII) was passed under the

[34] Kahn and Cerf, "What is the Internet (And What Makes It Work)," 8.
[35] Shah and Kesan, "The Privatization of the Internet's Backbone Network," 6.

Clinton administration, which proposed to privatize the NSF backbone, and ultimately paved the way for privatization. On April 30, 1995, the NSFNET backbone was terminated, which ended the US government ownership of the Internet. The AUP now enabled users to use the Internet for non-academic purposes.[36]

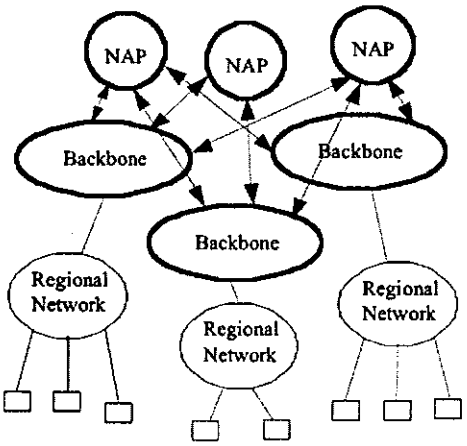


Figure 2. The New Design for the NSFNET

Figure 2 shows multiple backbones connecting through NAPs. Privatization of the Internet meant the need for a new architecture to manage the interconnection services. It demonstrates that the regional networks chose a commercial backbone network rather than a central backbone that connected regional networks. In order to ensure connectivity between commercial backbone networks, the regional networks interconnected at the NAPs (Network Access Points). The NSFNET retired on April 30, 1995. NAPs were now operated by the private sector. The privatization of the NSFNET backbone reshaped the infrastructure of the Internet because now instead of one major backbone (NSFNET), the

[36] Janet Abbate, "Government, Business, and the Making of the Internet," *The Business History Review* 75, no. 1 (April 1, 2001): 173.

new network depended on multiple backbone providers. The NSF created the NAPs to interconnect the different networks and to "prevent a Balkanized Internet."[37]

## The Commercialization of the Web: Web Browsers

The Federal government played a major role creating and developing the Internet, while the private sector interests made the Internet available to the public.[38] In 1990, computer scientist Tim Berners-Less established the World Wide Web (WWW), a network of Internet websites that enabled global access to online data through websites and hyperlinks. This network became accessible and free to the public in 1993. The Internet is the global information system that includes many high level applications—the Web is one of these applications.[39]

The commercial use of the Internet rapidly increased the number of users, especially with the development of the World Wide Web. By June 1993, more than 130 server computers had Web browsers. By July 1996, the number of Web-enabled server computers grew a thousand fold to over 150,000. The image below shows the exponential growth of the Web. It also shows how much the Internet transformed from academic to commercial use. In June 1992, only 1.5% (2 out of 130) of web servers had .com addresses: by the end of 1996, 90% (200,000) had .com addresses.[40]

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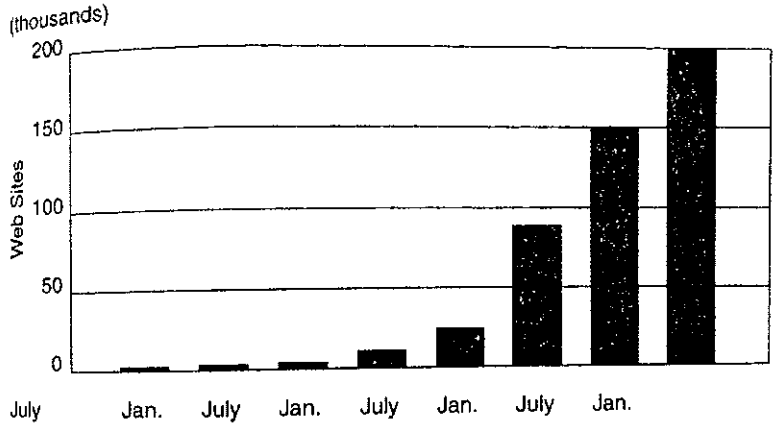
[37] Shah and Kesan, "The Privatization of the Internet's Backbone Network," 511.
[38] Kahn and Cerf, "What is the Internet (And What Makes It Work)," 8.
[39] Ibid, 12.
[40] Reid, *Architects of the Web: 1,000 Says that Built the Future of Businesses*, xxiv.

Exhibit I.2 Proliferating Web Sites

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The World Wide Web was initially slow and text-based. The first web browsers included Erwise and ViolaWWW, but they had their limitations. The web browser Mosaic, developed by Marc Andreessen and Eric Bina, was subsequently launched. Mosaic popularized the World Wide Web and opened the web to the public free of charge.

Mosaic was the most influential of the early web browsers and is considered by many to be the genesis of American new media.[42] Mosaic was developed at the National Center for Supercomputing Applications (NCSA) at the University of Illinois in late 1992 and was released in January 1993. It was a navigational tool that enabled users to easily access information on the Internet.[43] Unlike the older web browsers, Mosaic was unique because it enabled images and texts to appear on the same page.

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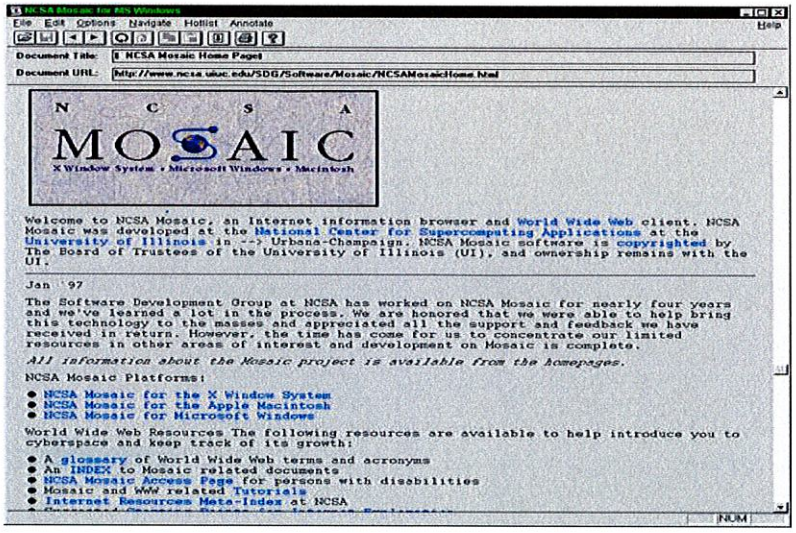
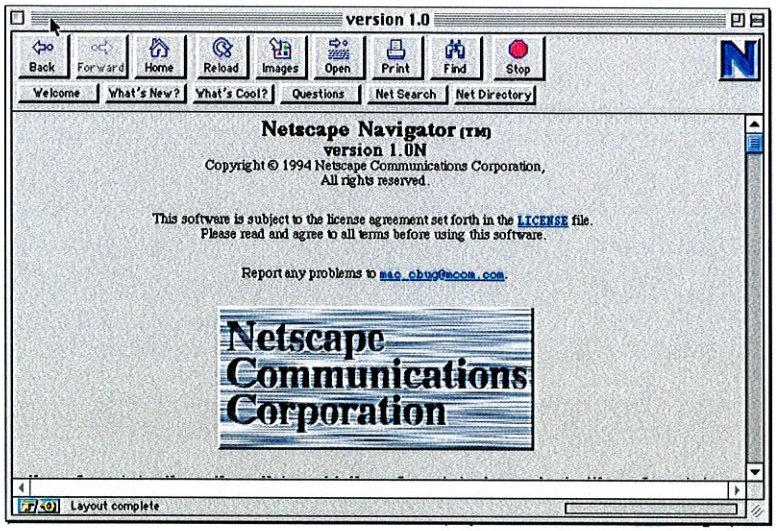
[41] Ibid, xxv.
[42] Steinbock, *The Birth of Internet Marketing Communications*, 47.
[43] Ibid, 47.




The general public did not become aware of the Internet until 1994. The public became aware of the Internet as a result of the World Wide Web, especially after the web browser Netscape was released. Netscape Navigator, co-written and founded by Mark Andreessen and Jim Clark, was introduced as the first commercial web browser in October 1994, and became available to download the follow month. People involved in its development included ex-employees of the NCSA who were lured away in order to create Mosaic Communications. The name of the new company was subsequently changed to Netscape Communications for licensing reasons. Netscape Communications was a faster, more reliable, and more sophisticated version of the Mosaic browser.[44] The Netscape Navigator was more advanced and faster than the Mosaic browser, but was only able to get to that point because it was featured incremental changes on the Mosaic model. The Internet experienced tremendous growth with the privatization and subsequent commercialization of the Internet. As commercial interests grew, and private

[44] Steinbock, *The Birth of Internet Marketing Communications,* 48.

companies invested large sums of money into the Internet, advertising played a major role generating revenue for websites.




In The World is Flat, Thomas L. Friedman argues ten factors came together in the 1990s that caused the competitive playing field between industrial and emerging market countries to level out. According to Friedman flattening means equalizing: "flattening forces are empowering more and more individuals today to reach farther, faster, deeper, and cheaper than ever before…giving so many more people the tools and ability to connect, compete and collaborate."[45] Netscape was the first popular commercial browser that displayed images and data stores on Websites. Netscape's IPO on August 9, 1995 enabled more people to interact on a global scale than ever before. It made the Internet easily accessible to everyone. According to Friedman, "This in turn set off an explosion in demand for all things digital and sparked the Internet boom…This led to the dot-com

[45] Friedman, *The World is Flat 3.0: A Brief History of the Twenty-First Century,* x.

stock bubble...This development, in turn, wired the whole world together, and, without anyone really planning it made Bangalore a suburb of Boston."[46]

By the early 1990s, the Web was still in its infancy and the Internet as a commercial platform was a bold new concept. The lifting of the restrictions on the commercial use of the Internet opened the Internet's resources to people of all ages and backgrounds around the world. The commercialization of the Internet started a revolution. The expansion and commercialization of the Internet and the harnessing of evolving technological advances led to the first experiments with online advertising, in the form of banner ads.

## Chapter 2: Rise of Banner Ads and the Dot-Com boom

This chapter discusses how the commercialization of the Internet required advertising to sustain the medium, which fueled the dot-com boom. I discuss the AT&T banner ad and then tell the broader story of the banner ad, through legislation that enabled the expansion of the web, responses to this legislation, and its significance.

The AT&T banner launched by Hotwired on October 27, 1994, is widely remembered as the world's first banner ad.[47] In order for companies to spread their brand online, they advertised on other websites with a hyperlink back to their home page. The banner ad that appeared on the Web by Hotwired was the standard 468x60 pixels in size and was placed horizontally across the top of Web pages. The message and concept were clear but the appearance of this static banner ad was simple.

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[46] Ibid, 57.

[47] In his textbook *The Complete Internet* Marketer, Jay Neuman, however, argues the first clickable ad to appear on the Internet was introduced in 1993 when O'Reilly & Associates, an American media company, launched the Global Network Navigator (GNN). GNN sold a clickable ad to a Silicon Valley law firm, Heller, Ehrman, White and McAuliffe, in 1993. But Hotwired was the first commercial website to sell banner ads on a large scale.

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Banner ads from 14 different companies including MCI, Volvo, Club Med, 1-800-Collect, AT&T and Zima went live when HotWired.com first launched on the Web on October 27, 1994. The sponsors were charged $20-$30,000 for a 12-week time slot.[49] Although AT&T was only one of a group of pioneering companies to try out this revolutionary advertising approach, theirs will most likely continue to be remembered as the first banner ad. While many criticize the AT&T ad for its simplicity and primitive appearance, the creation of the ad was a well-thought out and very considered process. The ads may have been primitive but the creators used the Internet in order to create a new advertising platform. Online marketing would as a result incrementally move forward.

During the 1990s the Internet was brand new to the public and people were still figuring it out. The AT&T banner ad was successful because it was helpful. People were curious about the Internet and AT&T's banner ad showed consumers the Internet's possibilities. According to Joe McCambley, the creative director at Modem Media and considered by many to be the father of banner ads, the AT&T banner ad "demonstrated how AT&T could transport people through space and time via the Internet—just as

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[48] "The 'First' Banner Ad," http://www.thefirstbannerad.com/index.html.
[49] Rebecca Greenfield, "The Trailblazing, Candy-Colored History Of The Online Banner Ad," *Fast Company*, accessed November 6, 2014, http://www.fastcompany.com/3037484/most-creative-people/the-trailblazing-candy-colored-history-of-the-online-banner-ad.

AT&T had done 100 years earlier with the first long distance network."[50] AT&T wanted to do the same with the Internet as they had done with telephones: they wanted to teach people to communicate in a new way.

Bill Clausen, who worked in marketing at AT&T and studied interactive marketing, argued that the banner ad should be unique. The company wanted to convince customers that they had access to something they did not previously have access to or did not think they would have access to in the future.[51] Similarly, Joe McCambley argued at the time that "We knew that AT&T was spending hundreds of millions of dollars on the 'You Will' campaign. There was incredibly high awareness of the campaign. So we wanted to take advantage of that."[52] AT&T had already invested a large amount of money on their "You Will" campaign. The banner ad was successful in no small part to the fact that there was already a lot of awareness of the AT&T campaign. It received a 44% click through rate, which was an extremely high number considering there were roughly 14 million people online and only tens of thousands of people using Hotwired.[53] The ads in the campaign all started with "Have you ever done x" and then followed with "You Will." The campaign was a fantasy about how great the future would be. AT&T was moving towards interactive technologies as a new avenue through which to market their products in order to reach a younger audience. The combination of forward-looking

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[50] Joe McCambley, "Stop Selling Ads and Do Something Useful," *Harvard Business Review*, https://hbr.org/2013/02/stop-selling-ads-and-do-someth/.
[51]Brian Morrissey, "How the Banner Ad War Born," *Digiday,* April 12, 2013.http://digiday.com/agencies/how-the-banner-ad-war-born/.
[52] Rebecca Greenfield, "The Trailblazing, Candy-Colored History of the Online Banner Ad," *Fast Company,* October 27, 2014.http://www.fastcompany.com/3037484/most-creative-people/the-trailblazing-candy-colored-history-of-the-online-banner-ad
[53] Ibid.

content appearing on the new media-outlet of the Internet was a well-positioned business strategy.

The banner ad initially received a 44% click-through rate, which is especially noteworthy compared to the click-through rate today, which is only about 0.01%. In retrospect, banner ads are often criticized as irrelevant. However, according to *Digiday* writer Brian Morrissey, "despite its many flaws—and all those that created the original banner share misgivings about what it's become—the banner has powered the creation of tons of freely available content and given birth to a substantial new media industry."[54] Until the rise of the Internet, there was limited real-time analytics on advertising. The rise of the banner ads enabled advertisers to measure consumer engagement on the Web.[55]

According to McCambley, "the first banner had three advantages over modern digital ads: it was part of an integrated marketing campaign; it was a great experience (as opposed to being a mere message); and it was created with only good intentions towards consumers." [56] The ad ran in the Arts & Styles section of Hotwired. Rather than create a banner ad that led users to an AT&T page, McCambley and co-builder Craig Kanarick created a landing page for the AT&T ad that linked with a map of the world that included websites for museums around the world (images shown below). Users had the option to view artwork from the Louvre, the Warhol Museum, Singapore Art & History museum

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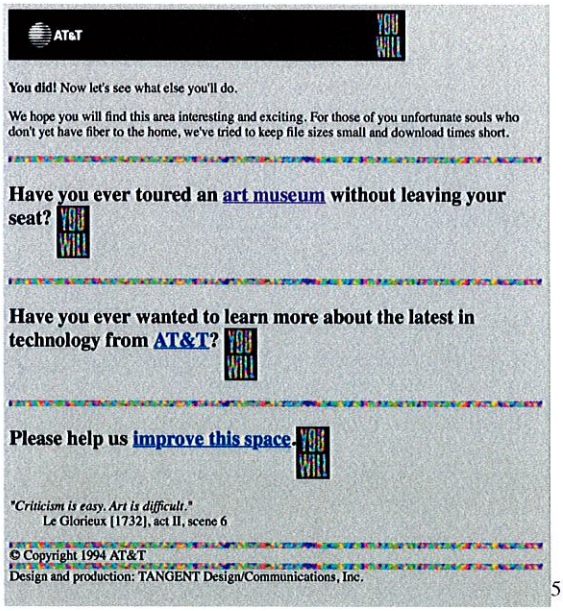
[54]Brian Morrissey, "How the Banner Ad War Born," *Digiday,* April 12, 2013.http://digiday.com/agencies/how-the-banner-ad-war-born/.
[55] It wasn't until 1996, however, until advertising was standardized.
[56] Joe McCambley, "The First ever banner ad: why did it work so well?." *The Guardian*, December 12, 2013, http://www.theguardian.com/media-network/media-network-blog/2013/dec/12/first-ever-banner-ad-advertising.

and many others.[57] The idea was to give users access to information and places they might not otherwise have access to beyond the Web.



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It is significant that the name AT&T did not appear anywhere on the banner ad. Instead, Hotwired took advantage of AT&T's "You Will" Campaign, which appeared on

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[57] Brian Morrissey, "How the Banner Ad War Born," *Digiday,* April 12, 2013.http://digiday.com/agencies/how-the-banner-ad-war-born/.
[58] "The 'First' Banner Ad," http://www.thefirstbannerad.com/index.html.
[59] Ibid.

television at the time and was about imagining technological advancements. For example, one TV ad showed a father reading a bed-time story to his daughter over video conferencing.[60] The campaign demonstrated how AT&T envisioned how technology could transform the future. The idea behind the banner ad was to bring the campaign online and redefine the offline brand to better serve the new online platform.

As discussed in Chapter 1, there was certain legislation that enabled the expansion of the Web. In 1990 the NSF, and OTA sponsored a workshop at Harvard University on the commercialization of the Internet. The Internet did not have a significant impact on the law before the mid-1990s because it was not yet commercialized. In 1992, the government altered NSFNET's AUP to enable commercial traffic on the Internet. This was a key element to government withdrawal to the private sector.

Bill Clinton and Al Gore were key players in creating legislation that advocated greater public access to the Internet. In September 1993, the Clinton Administration released its Agenda for Action initiative, which established how the telecommunications and information resources in the United States should evolve. The National Information Infrastructure (NII), commonly known as the Information Superhighway, would use private and public allocations to create "a seamless web of communications networks, computers, databases, and consumer electronics that will put vast amounts of information at users' fingertips."[61] The NII was built, owned and operated by the private sector, but government policy was still a major factor regulating the Act.

The Telecommunications Act, signed by President Bill Clinton in 1996, reformed

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[60]Brian Morrissey, "How the Banner Ad War Born," *Digiday,* April 12, 2013.http://digiday.com/agencies/how-the-banner-ad-war-born/.
[61] "The National Information Infrastructure: Agenda for Action," *Internet Archive,* https://archive.org/details/04Kahle000911.

regulations on telephone and broadcasting companies and eliminated barriers to enter, protecting an open Internet. The Act coincided with the rise in banner ads and the dot-com bubble. It was the first legislation that addressed Internet access in the United States and it signaled a new era of competition by opening markets to competition and removing regulatory barriers for companies to enter the communications business. According to the 1998 Congressional Research Services (CRS) report, the Telecommunications Act would lead to increased consumer choice, lower consumer prices, increased efficiency, technological advances, and increased investment in developing information infrastructure.[62] The expansion of the Internet transformed consumer markets because more consumers had access to the Web. Before the Telecommunications Act, Internet service providers such as American Online (AOL) made revenues from subscriptions. After the Act was passed, Internet advertising emerged as the main source of revenue.[63] Advertising revenue was a driving force in the expansion of the Internet. It is therefore not surprising that companies were motivated to invest in the Internet.

DoubleClick was founded in 1996 as a banner ad measurement and placement firm in response to the advertising growth on the Web. It is a network of websites where advertisers purchase banner ads. It sells banner ads on member sites and takes a certain percentage of the revenues.[64] It used Dynamic Advertising Reporting and Targeting (DART), which received specific information about consumers through a "cookie," which allowed websites to store information on the hard drive of a computer, and record information about the user, including sites visited and passwords. Access to cookies

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[62] CRS Report for Congress, *The Telecommunications Act of 1996: A Brief Overview*, 2 November 1998, 1-2.
[63] Steinbock,*The Birth of Internet Marketing Communications, 38.*
[64]Melanie Warner, "DoubleClick Internet Advertising," July 8, 1996, Fortune Magazine, http://archive.fortune.com/magazines/fortune/fortune_archive/1996/07/08/214327/index.htm.

enabled DoubleClick to take a big step in targeted Internet ads and improved the company's ad delivery.[65]

The Internet Advertising Bureau (IAB) was also established in 1996 in an effort to establish standardized guidelines for online advertising. Publishers needed a way to understand the results of advertising on their sites, and the IAB addressed this need. The IAB evaluates and recommends standards and practices, researches the effectiveness of the online medium, and educates the advertising industry about the use on online advertising.[66] Prior to the IAB, many companies produced their own measures for online advertising.

The dot-com boom coincided with the rise of banner ads. The rise of the banner ad evolved with the commercialization of the Internet and helped the dot-com boom create a multi-billion dollar advertising industry. Banner advertising was a lucrative business in the 1990s. There was an educated and forward-looking group of individuals who recognized the revolutionary opportunity and continued to invest in the field.[67] The commercialization of the Internet with the growth of the World Wide Web incentivized companies to increase efficiency, create better relationships with consumers, and achieve global visibility. The dot-com boom of the 1990s was a time when there were numerous attractive opportunities for businesses and venture capitalists to invest in Internet startup companies. The attractiveness of these investments also had a lot to do with a boom mentality—there weren't necessarily profits to be made. The Netscape

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[65] Alex Kinnier, "Why We're Buying DoubleClick," *Official Google Blog*, June 26, 2007, http://googleblog.blogspot.com/2007/06/why-were-buying-doubleclick.html.
[66] John Philip Jones, "The Internet Advertising Bureau (IAB)," in *Advertising Organizations and Publications: A Resource Guide* (Thousand Oaks, CA: SAGE Publications, Inc., 2000), 177.
[67] Craig Kanarick, multi-media designer who worked at different agencies; Joe McCambley, creative executive at Modem Media, Andrew Anker, CEO Wired Ventures.

Browser could be downloaded for free by December 1994 and enabled people from all over the world to gain access to the Internet. The excitement of being able to instantaneously communicate with others all over the world was electric and helped further spark the dot-com boom. Millions of users around the world who connected to the Internet became pioneers in the Internet revolution. As more users connected, an increasing number of people were compelled to join the revolution. Friedman argues the universal nature and usefulness of the Internet "set off an explosion in demands for all things digital and sparked the Internet boom, because every investor looked at the Internet and concluded that if everything was going to be digitized...and transported and sold on the Internet, then the demand for Internet-based products and services would be infinite."[68] As a result of the dot-com boom, digital technology began the transformative process in how people conduct their personal and work lives.

The introduction of the Internet to the world in the mid-1990s prompted the shift from traditional advertising techniques such as television and radio to new marketing techniques on the World Wide Web. Newspapers, magazines, and TV offered a limited interactive experience. The Internet, however, enabled feedback and an online community. Although the Internet was still in its early stages, it was clear that the changing technologies would transform the existing forms of advertising.[69] The emergence and recognition of the Internet as a tool and a force that could globally connect users around the world was a cultural transformation of shattering magnitude.

People had the highest expectations that banner ads could unleash business opportunities and connections. In traditional advertising, the advertiser was confined to a

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[68] Friedman, *The World is Flat,* 57. Although the Internet was universal, the early users of the internet were primarily young, wealthy, middle class men, so it wasn't as universal as he claimed.
[69] Dan Steinbock, *The Birth of Internet Marketing Communications,* 145.

specific space. Banner ads, however, connected and transported consumers to different sponsored websites. By 1995, the Internet was open to the masses, and it was understood that advertisers could reach hundreds of millions of consumers through the Internet. According to Michelle Rafter of *Reuters News*, "Corporate America was quick to catch on, seeing a potential new advertising vehicle…targeted to the Internet's biggest users: young, upscale, well-educated men, and more recently women."[70] It was understood that advertising on the Web was critical in order to sustain online businesses. Banner ads paved the way for advertising on the Web. Banner ads allowed companies to monetize their sites on the web and motivated businesses to figure out how to expand their presence and influence across the Internet.

The Internet as a commercial platform was in its infancy in the early 1990s when the Web was also still in its most nascent form, and as a result there were conflicts. As discussed in Chapter 1, the restrictions on commercial uses of the Internet were lifted in 1992 with the revision of the Acceptable Use Policy. Although the commercialization of the Internet was widely supported, the Internet and World Wide prompted debate over social and cultural concerns including the right to privacy, protection of children from inappropriate materials, intellectual property, issues of social equality, etc.[71] However, the growing number of users during the internet boom created a new source of advertising. As a result, the evolving technology and advertising campaigns on the Internet led to the increased prominence of banner ads.

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[70] Michelle V. Rafter, "The Internet's Biggest Product—Advertising.," *Reuters News,* December 5, 1995, http://global.factiva.com/redir/default.aspx?P=sa&an=lba0000020011103drc50103d&cat=a&ep=ASE.

[71] "History of the Internet and World Wide Web (WWW)-Commercialization," http://ecommerce.hostip.info/pages/552/History-Internet-World-Wide-Web-WWW-COMMERCIALIZATION.html.

The rate of commercialization of the Web continued to grow in the mid-1990s and it was becoming increasingly apparent that businesses needed to have a presence on the Web. Mass marketers were forced to redefine their brands online. After mid 1994, the number of commercial sites (.com) exceeded the number of educational sites (.edu).[72] *Wired* magazine was established in 1993 by Wired Ventures Inc. The birth of the Internet and the commercialization of the Web enabled mass marketers to reach consumers in a cost-efficient manner. Wired Ventures Inc. took advantage of this trend by starting *Wired* Magazine and Hotwired, brands, which became representative of the digital age. The goal was to create a platform that enabled advertisers to launch brands across multiple media outlets.[73] Hotwired launched a revolution on the Web. Celebrating the banner ad's second birthday, Debra Aho Williamson and Alice Z. Cuneo, editors at *Advertising Age* praised the banner ad as the most explosive ad medium since the start of cable.[74]

Modem Media, the first interactive advertising agency, launched the first online consumer marketing campaign on the Internet in 1994 for Zima, a clear malt beverage introduced by Coors Brewing Company. Similar to the AT&T banner ad, the Zima campaign used traditional advertising through the knowledge of the television campaign, and it used the internet, in Zima's case email, to draw users to the website. Zima used Internet marketing by creating a Website and printing the Internet address, www.zima.com, on the inside of the Zima bottle. The Zima website provided users with basic information about their products. The mission of the company was to "create an 'alternative' to beer, starting from scratch...the concept: create something different,

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[72] Dan Steinbock, *The Birth of Internet Marketing Communications,* 139.
[73] Ibid, 157.
[74] Debra Aho Williamson and Alice Z. Cuneo, "Web Ads Mark 2nd Birthday with Decisive Issues Ahead. (Cover Story)," *Advertising Age* 67, no. 43 (October 21, 1996).

appeal to young adults, and minimize cannibalization."[75] As the first online consumer campaign, Zima did not have anything to evolve from. Zima utilized non-internet, traditional marketing vehicles like TV commercials to spread awareness of the brand and then drive consumers to their website.

What made Zima advertising different than other advertising was that Modem Media favored a "user-centric approach", which meant the consumer was online to pursue an interest and was online in order to fulfill it.[76] Zima incorporated an e-mail feedback loop by creating a webpage that enabled consumers to ask questions and encouraged interaction between consumers and advertisers. Advertisers were now able to assess the performance of the brand and the effectiveness of the website. The interactive component of the Internet was a game changer for advertisers that helped them develop their products. Zima's website also contained hyperlinks which connected consumers across the web, thus further amplifying the power of the Internet. Zima ultimately failed, however, because although consumers were attracted to and drawn into the online campaign, they did not like the product.[77]

Hotwired was highly successful because it was able to redefine brands online. Hotwired offered both content and context. Hotwired was unique because it published existing feature stories like other mainstream magazines and newspapers as well as featured content from *Wired* Magazine and various topics including politics, travel, arts, entertainment, health, careers, and lifestyle."[78] It paved the way for interactive media and helped establish already successful *Wired* magazine in the new digital media platform.

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[75] Dan Steinbock, *The Birth of Internet Marketing Communications,* 138.
[76] Ibid. 139.
[77] Ibid. 153.
[78] Ibid158.

Hotwired was the first company to implement a successful sponsored banner model on the Web.

The banner ad laid the groundwork for the new vehicle of interactive marketing that emerged with the introduction of the World Wide Web. Advertisers today are now able to more accurately direct their efforts and efficiently focus in on targeted consumers by using interactive marketing and the click-through rates that Hotwired first introduced. Banner ads in the 1990s represented the first steps in Internet marketing, which led to the more sophisticated and precise technology we have today, which in turn continues to evolve in incremental steps.

The next chapter will discuss the burst of the dot-com bubble and the fall of banner advertising. By the late 1990s, companies continued to focus on the number of consumers they could target, rather than the profit growth for their company. Businesses assumed that reaching more targets would increase their profit and in order to reach this goal they spent massive amounts of money on advertising. This business strategy did not work. Banner ads were initially successful but received lower click-through rates after the dot-com bust. Companies who owned Websites could no longer rely on banner ads as a means to generate revenue after the dot-com bust.

## Chapter 3: The fall of the Banner ad and the Dot-Com Bubble Burst

Author and journalist-turned entrepreneur Michael Wolff relates his insider story of the early Internet industry in the mid-1990s in his book *Burn Rate: How I Survived the Gold Rush Years on the Internet*:

> Nobody knows what's going on. The technology people don't know. The content people don't know. The money people don't know. Whatever we agree on today will be disputed tomorrow. Whoever is leading today, I can say with absolute certainty, will

> be adrift or transformed some number of months from now. Whoever screws with you will get screwed with, too. It's a kind of anarchy. A strangely level playing field. The Wild Wild West.[79]

The Internet was a terrific opportunity for businesses. The Internet was also underdeveloped and there was a tremendous uncertainty about its nature and its capabilities. Business models to adapt to the new paradigm of the Internet were still being developed—imperfectly so—and many businesses were continually imploding because of difficulty navigating these new waters.

Banner ads helped monetize the Internet and turn it into a realm of commerce. Venture Capitalist speculation about the capacity of the Internet to transform the global economy ultimately led to the March 2000 dot-com bust, in which markets could no longer sustain the process of large venture capitalist investment and IPOs. The advertising model was partly responsible for the crash, and one reason for this was flaws in the advertising model itself. I argue that the decline of the banner ad and the dot-com bubble burst were irrevocably intertwined.

During the 1990s, Internet companies made most of their money through online advertising. Internet advertising played a critical role that influenced the business approach of many tech companies. Many internet companies expected that their main source of revenue would come from Internet advertising: Yahoo's July 2000 quarterly report, for example, stated "we rely heavily on revenues derived from Internet advertising, which may prove to be an ineffective means of advertising for our clients."[80] Advertising on the Internet was a new medium that appeared to lower the cost of doing

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[79] Ibid, 268.
[80] *Yahoo Prospectus*, July 17, 2000, http://www.sec.gov/Archives/edgar/containers/fix043/1011006/a424b3.htm#00PAL2139_1.

business. Venture capitalists actively invested in this economic boom and invested in many startups. The startups poured their venture-capital contributed dollars into escalating advertising campaigns that ultimately did not generate enough revenue to sustain businesses. This ever-upward spiraling trend of spending without a reasonable return on the investments was a major factor that led to the dot-com bubble burst.[81]

The venture capital investment-fueled craze resulted in an influx of capital that the economy could no longer sustain, which was a major factor that led to the dot-com boom in the mid to late 1990s. The dot-com boom led to an enormous increase in stock prices in Internet and telecommunications stocks. From 1997-1998, AOL's stock rose by 593%, Yahoo's by 584%, Amazon's by 970%. The dot-com bubble burst in March 2000. The stock market value of Internet and telecommunications stocks collapsed and a recession ensued. Between March 10, 2000 and April 14, 2000 the NASDAQ fell 34.2%. The stock prices for the 20 leading Internet stocks reflected this decline.[82]

Yahoo was the largest Internet Company before the dot-com bust in 2000. Yahoo relied heavily on the revenues it gained from advertising, and its revenues increased sharply in the years leading up to the bust. Yahoo reached $1 billion in revenue in 2000 but it had a flawed business strategy.[83] Yahoo relied on receiving money from venture capital-backed startups during this new Internet age rather than from revenue generated from business resulting from advertising that appeared in TV, magazine and newspaper ads.

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[81] Robert E. Litan, "The Internet Economy," *Foreign Policy,* no. 123 (March 1, 2001): 18.
[82] Ha Sung Hwang and Concetta Stewart, "Lessons from Dot-Com Boom and Bust," *Encyclopedia of E-Commerce, E-Government, and Mobile Commerce*, 2006.
[83] Revenue and market cap are important measurements of a company's financial strength, size and performance and help investors compare the value of companies. A company's revenue is a measure that evaluates performance and gains, while the market cap measures the value of the company's stock and tells investors what the company is worth.

In 1999 venture capitalists invested $56.9 billion into startups, which in turn used a large portion of this money to purchase Internet ads on large internet portals such as AOL and Yahoo. The problem was that these ads on the portals did not help startups sustain their businesses. Unlike traditional marketing for television, magazines, etc., the internet advertisements were not designed to help these startups sustain a viable business model that including collecting a stream of revenues to support the companies. The startups that paid for ads on the portals were backed up by venture capitalists, and the money eventually ran out: it was observed that "as many of those companies began to fail, fear supplanted greed in the public markets, and startup IPOs stopped doing so well...soon the VC money ran out."[84] This shortsighted approach led to the failure of many businesses that ultimately led to the dot-com bust. Yahoo's market cap in January 2000 was $128 billion and it rapidly fell to $5 billion in September 2000. Profits turned to losses as dot-com companies spiraled downward, lost venture capital funding and went out of business.[85] As shown in Figure 1, revenues at Yahoo shrunk by $300 million in 2001.

[84] Nicholas Carlson, "Facebook is Hiding Important Information From Investors," *Business Insider,* September 16, 2014. http://www.businessinsider.com/facebook-is-hiding-important-information-2014-9.
[85] Ibid.

86

Yahoo had a greater amount of Internet traffic than any other company at the time. The prevailing wisdom was that the more traffic a website had, the more valuable the company was. Companies were eager to pay to purchase banner ads that would be displayed on Yahoo, which was touted as a prime example of an Internet company that worked and could make money. Venture capitalists continued to invest in startups who then bought millions of dollars of advertising to promote their brand. These ads proved to be expensive and ineffective and this resulted in an inevitable disaster.

## Lack of Standardization as example of disillusionment with banner ads

When banner ads emerged on the Web in 1994, there was no uniform standard measurement of advertising. According to Scott Donaton at *Advertising Age*, and a common opinion of the time, "The lack of internet standards is currently the single greatest impediment to the Web's emergence as a viable long-term advertising

[86] Ibid.

medium."[87] Some companies benchmarked advertising rates to the number of people who saw a banner ad (Cost Per Impression), while other companies benchmarked advertising rates to the number of people who clicked on the banner ad (CTR). There was no standard way to accurately measure traffic on a commercial website and no standard way to accurately assess consumer response to advertising. An article published by Reuters in 1995 discussed the use of rate cards by various websites, but pointed out that these rate cards were not standardized. Websites charged up to $20,000 a month for advertisers to run ads on their website. In 1994, for example, Yahoo charged $20,000 a month and guaranteed that 1 million people would view their website.[88]Advertisers originally approached banner ads in the same way they would ads in traditional media such as print magazines or television commercials. Prices were based on the number of people who were exposed to the ad. Marketers did not take into consideration that the web enabled advertisers to measure not only the amount of advertising delivered, but also the amount of advertising consumed. Web publishers initially based their numbers and impressions on metrics that were used in traditional advertising. The assumptions and calculations used were inaccurate and led to the collapse of many companies. [89]

In their widely cited article, Donna Hoffman and Thomas Novak discuss the tremendous amount of inflation in the CPM metric (cost per impression) in the mid

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[87] Scott Donaton, "Standards required to Make Next Leap Opinion: Internet's Frontier Image Can Only Hold It Back," *Advertising Age*, November 4, 1996. http://global.factiva.com/redir/default.aspx?P=sa&an=advage0020011017dsb4000jj&ca=a&ep=ASE,

[88] Michelle V. Rafter, "The Internet's Biggest Product -- Advertising.," *Reuters News*, December 5, 1995, http://global.factiva.com/redir/default.aspx?P=sa&an=lba0000020011103drc50103d&cat=a&ep=ASE.

[89] Donna L. Hoffman and Thomas P. Novak, "How to Acquire Customers on the Web," *Harvard Business Review, June 5, 2000.*

1990s. For example, a web publisher could then charge a company $70 for every 1,000 visitors exposed to its banner ad. This was a frequently quoted fee, which indicated that the company would pay 7 cents for each person exposed to its banner. If 1% of the people who saw the banner ad clicked and were transported to the host website, the company would actually be paying $7 for each visitor. If a certain percentage of those visitors to the website through the banner ad were converted into paying customers, and the conversion rate was also 1%, the cost to acquire the new customer was $700. This was an extremely high, unrealistic and unsustainable number.[90]

The early Internet advertisers based their banner ad pricing on traditional print media because there was no other guide or precedent as to how to price these services. Online ads were a new phenomenon and consumer reaction to them had never previously been tested or studied. Banner ads were based on traditional advertising and there was not yet an understanding of how Internet business worked. The Internet was an entirely new phenomenon and advertisers grappled in their attempts to gain an understanding of how consumers and businesses would interact with it. No information was known, inaccurate assumptions were made and enormous business losses were incurred.

Because advertising rates were not yet standardized, the usual and customary approach to calculating advertising rates at that time was to allow companies to collate their own data and present their own rationalization for how they would set their rates. As a result of the absence of standardization, companies had different definitions of audience measurements, ad sizes, pricing, etc. These are all important factors investors review to gauge how much potential revenue can be generated. This approach led to frequent overvaluation of companies. Many investors were misled as to the true value of the firms

[90] Ibid.

that they were being asked to support. Fernando Bermejo explains that "The lack of standardization allowed websites to obtain audience data from different sources, to choose from the different measurements those that were more favorable, and to use the results for self-promotional purposes or, what was often much more lucrative, to multiply the value of their shares in the stock market."[91] The standardization of advertising did not begin until 1996, when the Internet Advertising Bureau (IAB) was established. This was after the dot-com bubble began. Many companies had already been valued and continued to be valued based on erroneous assumptions. An entire sector of the Internet marketplace operated on inaccurate data.

**The Bursting of the Dot Com Bubble**

Internet usage exploded in the 1990s. Venture capitalist investments increased from $3.4 billion in 1998 to $20 billion in 1999. By 2000, roughly 50% of the American population was online, and globally 338 million people were online.[92] The number of dot-com companies that could not sustain themselves increased rapidly. In 2000 more than 200 dot-com companies failed. Between January 2000-September 2001, 762 dot-coms closed. The unemployment rate increased from 3.9% to 6% by 2002. [93] Investors considered the Internet and technological innovations to be the investments of the future. A frequently repeated sentiment at the time was "as long as an e-commerce business 'makes sense' (it does not need to 'make cents'), it may still be backed by numerous

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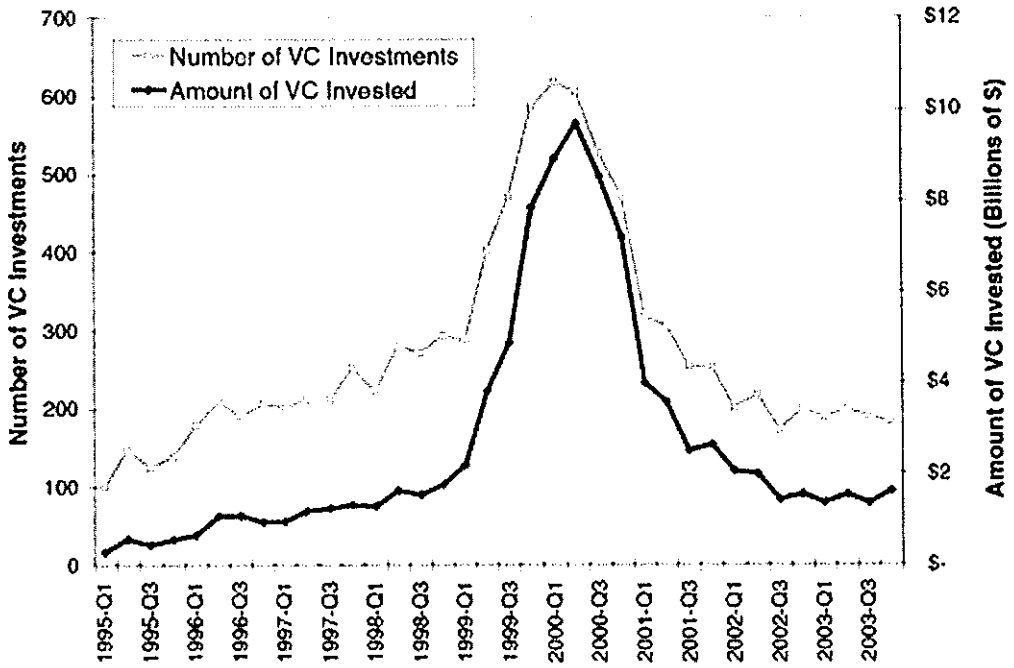
[91] Fernando Bermejo, *The Internet Audience: Constitution & Measurement* (Peter Lang, 2007).
[92] Alice Hill. "Boom to Bust-Six Deadly Moments That Brought About the Dot-Com Downfall." *Computer Shopper* 1 June 2001: 178. *Business Insights: Essentials.* http://bi.galegroup.com/essentials/article/GALE%7CA73687060/3d791ffc9faff303ddbcb16c8e25db5e?u=columbiau
[93] Ha Sung Hwang and Concetta Stewart, "Lessons from Dot-Com Boom and Bust," in *Encyclopedia of E-Commerce, E-Government, and Mobile Commerce* (ICI Global, 2006), 698.

investors."[94] As a result, venture capitalists continued to pour money into companies without following basic cautious business principles. Despite these flaws, people were willing to take risks and suspend their judgment because of the potential upside. While many investments did fail, many venture capitalists profited from their investments. It is important to remember that venture capitalists only continued to fund dot-com companies as long as the markets continued to demand the dot-com stocks.[95] The success of companies, Yahoo for example, is what demanded more venture capital investment.




[94] Ibid.

[95] Matthew Zook, *The Geography of the Internet Industry: Venture Capital, Dot-Coms, and Local Knowledge,* 1st edition (Malden MA: Wiley-Blackwell, 2005), 154.

Figure 2 shows the number of venture capital investments and the amount of venture capital invested in the San Francisco Bay Region between 1995 and 2003.[96] As illustrated in the graph, the number of venture capitalist funds increased exponentially between 1995 and 2000. The period between 1998 and 2000 was a time of especially increased growth. Spending increased 201% between 1998 and 1999, and 83% from 1999-2000. The success of Netscape's 1998 IPO gave many companies and venture capitalists the false hope that they too could be successful, even though the majority of the advertising money was directed to the largest Internet portals.[97]

The increase in spending on the Internet led to increased advertising revenues. Many investors hoped that they would be the next Netscape or Yahoo. Most dot-com startups relied on online advertising in order to generate revenue. The problem with this mid 1990s business model was that the banner ad was not working, as evidence of the declining click-through rates. Negative attitudes towards banner ads grew with the realization that money invested in these new firms did not generate profits.[98] This realization led to the initial slow down and eventual abrupt withdrawal of money in this sector, which led to the burst of the dot-com bubble. I argue that it is no coincidence that the negative attitudes towards banner ads and the realization that investors were spending exponentially large amounts of money directly coincides and is one reason why the dot-com bubble burst.

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[96] Ibid,112.
[97] Ibid, 113.
[98] Chang-Hoan Cho and Hongsik John Cheon, "Why Do People Avoid Advertising on the Internet?," *Journal of Advertising* 33, no, 4 (December 1, 2004), 90.

## Negative Ad Experience

In 2004, researchers Chang-Hoan Cho and Hongsik John Cheon studied why people avoided advertising on the Internet in the mid to late 1990s. Cho and Cheon theorize that Internet consumers avoided ads as a result of perceived goal impediment, perceived ad clutter, ad avoidance and prior negative experience.[99] The negative attitudes and disillusionment towards Internet advertising was reflected by declining click through rates. The advertiser paid a fee each time a consumer clicked on the banner ad which enabled them to go from the host website to the advertiser's site. The goal of banner ads is to move the consumer to one website and subsequently relocate them to the advertiser's site. Click through rates (CTR) had consistently declined since banner ads were first introduced on the Web in 1994. The click through rate in 1995 was 2%, 0.5% in 1998 and 0.2-0.6% in 2003.

First appearing on Hotwired in 1994, banner ads became the most prevalent form of advertising on the Internet. Traditional media was considered more entertainment-oriented while the Internet was more goal-oriented. People viewed advertising as noise and wanted to avoid it. For consumers who view the Internet as a goal-oriented medium, it is undesirable when ads pop up on the screen in the middle of a task.[100] Many consumers responded negatively to banner ads.

People thought the number of ads that they were forced to see on the internet was excessive. Consumers' negative attitudes of advertising stemmed from the

[99] Ibid, 90.
[100] Ibid, 91.

perception that the Internet was an exclusively advertising medium that interfered with the efforts to brose the Internet.[101] As a result of prior negative experiences with ads, consumers began to avoid Internet advertising. The avoidance of clicking on ads based on negative experiences contributed to the increasingly low click-through rates

Consumers began to install pop up blockers on their computers. While this makes sense, and many people including myself have pop up blockers, many people were too quick to criticize and condemn banner ads. The commercialization of the Internet and the transformation to digital advertising was a new concept that took time to implement. I agree with the economist Robert E. Litan who in his article "The Internet Economy" argues that in order to reach the point where we are today in advertising with growth and moderate inflation, trial and error was necessary: "Think of the dot-coms as the first wave of an amphibious assault on the old economy. Unfortunately, the casualties in any first attack are heavy...but the techniques and footholds these short-lived dot-coms establish pave the way for the heavy artillery to come in behind and rescue the day."[102] In the same way, banner ads pioneered the slow transformation of advertising into the digital age.

As discussed in chapter 2, the reason the AT&T banner ad was so successful was because it was the first of its kind. The AT&T banner ad, however, would never be successful today because it would be considered ad clutter that consumers would try to avoid. The initial success of the first banner ad was the product of its originality. People were curious about the possibilities of the Internet, and the AT&T banner ad fed into that curiosity. The simple message "Have You Ever Clicked Your Mouse Right Here" was simple and mysterious. The banner ads initially helped consumers explore the

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[101] Ibid, 90.
[102] Robert E. Litan, "The Internet Economy," *Foreign Policy,* no. 123 (March 1, 2001): 18.

magic of the Web by connecting them to different sources of information from around the world. After the short period of time that it took for people to familiarize themselves with the Internet and its capabilities, banner ads shifted from a novelty to a nuisance.

As Internet spending increased and more companies went public, advertisers realized they needed a better and more cost effective means to reach their audience. The introduction of banner ads was the first part of a large experiment into consumer behavior in the new and not well-understood medium of the Internet. Banner ads helped define what consumers liked and did not like in the advertising space. Marketers subsequently developed more evolved tools such as Google Adwords because their knowledge of negative reactions to certain aspects of banner ads allowed them to redirect their efforts and make them more user friendly and efficient.

Banner ads were a critical part of the initial research efforts that helped the advertising industry evolve and redirect its efforts in order to obtain more effective results. The subsequent research in advertising on the new medium of the Internet was critical in enabling marketers to generate the data needed to develop the more elegant and focused methods of reaching the consumer that we all benefit from today. The birth of Google in 1998, for example, was a seminal event, which irrevocably changed the magnitude of the importance and influence that technology would have on society. The transformation of society by digital technology changed the way people live and work.

## Conclusion

The 1990s was a decade of prosperity, defined by the rise of the Internet, the dot-com boom and the dot-com bust. This was a short-lived era in which startups irresponsibly spent more money than they earned in a mad rush to keep afloat and survive

just long enough for larger companies who could see synergies between their businesses to buy them out. The start-ups were convinced that it was more important for them to make a name for themselves on the Internet than to make a profit and present a sound business plan. "Conquer first, reap later," was a commonly quoted quip of the time.[103]

The decade of the Internet during the 1990s was a period when tech companies inflated company values and aggressively pushed for large, overvalued and overhyped IPOs. There was a surprisingly large amount of ignorance and lack of insight into technology amongst investors, pundits and even the owners of many of these start-up industries. Many companies made outlandish claims hyping their products and were not a bit shamed about the downright lies and deceptions they distributed to the public. In *Burn Rate*, Michael Wolff observes how one entrepreneur made the mistake of admitting to a group of investors he needed money to meet a payroll and says: "And while that was true of his business and of every other business in the new Internet industry and while everyone knew it was true—that is, that cash was just being consumed at a rate and with an illogic that no one could explain, much less justify—you must never, never admit it."[104]

For many people, the Internet is the greatest thing that was ever invented. The Internet connects users to enormous pools of information from all around the world and has become indispensable for all aspects of life. The commercialization of the Internet provided the funding for the Internet to expand. The Internet has evolved to become a sophisticated and elegant tool that seamlessly connects us to every imaginable link and enables us to locate the most small and detailed piece of information, however trivial.

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[103] Michael Wolff, *Burn Rate: How I Survived the Gold Rush Years on the Internet*, 1st Touchstone edition (Simon & Schuster, 2013), 18.
[104] Ibid, 101.

The Internet has provided a mechanism to launch enormous commercial advances by businesses all over the world.

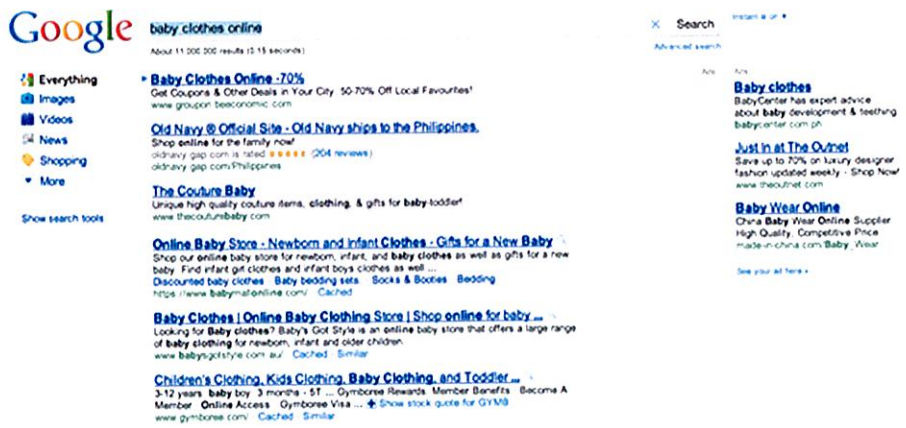
It is easy to overlook the fact that the development of the Internet was made possible by advertising. Banner ads were the earliest form of Internet advertising. The banner ads that are today perceived as so simple and primitive are what allowed the development of the Internet to achieve the ubiquity it possesses today. One of the most frequent ways for a website to generate revenue is advertising. The website or search engine allows different businesses to advertise on their site. The more popular and more frequently visited websites are able to charge more money to the different companies that want to post advertisements on their sites. Banner ads were the pioneering format for advertising used during the early Internet era. They were the first forms of advertisement introduced on the Internet. There was no benchmark or precedent from which they could improve. They were the first.

The format and presentation of advertising on the Internet improved over time. Businesses studied user feedback to improve their online advertising approach. This evolved into the much more elegant, sophisticated and continuously evolving system that is in place today. The effectiveness of banner ads has been hotly debated and widely contested. Banner ads laid the seeds for the Internet advertising industry. The Internet would not have been able to grow and expand as it did if not fueled by advertising dollars, and those initial advertising dollars were provided by banner ads. Indispensable tools of modern living such as Google search, Facebook and innumerable websites that people all over the world have access to for free information would not have been developed if it were not for the advertising dollars collected through the nascent Internet

advertising industry. The banner ads were right there at the beginning allowing the new advertising industry on the Internet the chance to develop.

Although banner ads were short-lived, they paved the way for newer technologies. Google revolutionized online advertising. There was a shift in format and delivery from banner ads to text ads. Google was founded in 1998 by Larry Page and Sergey Brin. Through December 1999, Google focused on their algorithmic search engine. Revenues initially came from licensing the search technology to Yahoo and other major portals. The searches were free of charge and there was no advertising on the search page (as shown in the figure below). This is different from conventional advertising such as banner ads where users had no prescreened particular interest in the product promoted. Google delivered advertisements that were specifically targeted at the user. Google became so successful because it had higher quality search results than other search engines. Google uses PageRank which determines the importance of a website by ranking websites in search engine results—the most important web pages are the ones with the most links leading to them.[105]

[105] Andrew Wheen, *Dot-Dash to Dot-Com: How Modern Telecommunications Evolved from the Telegraph to the Internet,* 2011 edition (New York: Chichester, UK: Springer, 2010), 148

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Google is praised today for the myriad innovations it has brought to the advertising industry. Their mission statement, however, is certainly not a revolutionary new idea: "Google's mission is to organize the world's information and make it universally accessible and useful." [107] It sounds very similar to the original goals of Joe McCambley and Craig Kanarick during their creation of the first banner ad: the AT&T banner ad made museums accessible, and made information universally accessible and useful. So why are Google ads praised and banner ads disdained? Unlike banner ads, Google Adwords, Google's online advertising, were originally text-based ads based on search engine results. Banner advertising rapidly declined with the dot-com bubble burst because they were expensive and had a low rate of return for the money businesses had to invest in them. The Google search engine technology, however, thrived because it was highly efficient and amenable to even further improvements.

The new technologies have introduced conflicts over issues that had not yet been predicted in an earlier era. Net neutrality, for example, refers to a situation where corporations such as service providers treat all data on the Internet equally. Supporters of

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[106] "Rise and Fall of Online Advertising," ttp://www.1stwebdesigner.com/design/online-advertising-history/.

[107] Benjamin Edelman and Thomas R. Eisenmann, "Google Inc.," January 28, 2010. (Revised April 11, 2011).

net-neutrality want the Federal Communications Commission (FCC) to provide equal services without discrimination to everyone on the Internet. This proposition leads some to question whether this will lead to the specter of having Internet services that are highly regulated by the government. The Internet became unregulated after it was privatized. This caused and continues to cause new potential problems that were not predictable before certain technologies were invented. The Internet now has video streaming services, for example, that are used as a substitute for television. Cable providers, however, control Internet access for these streaming services. Digital platforms like Netflix, Amazon, and YouTube recognize the enormous amount of money in video services. The digital platforms want to get Internet access for free.[108] Digital platforms also want to introduce the option to get higher quality access to cable for preferred customers, want to charge a higher fee to their customers for it and if needed are also willing to pay a higher fee for it. Cable providers want to provide preferential pricing. Consumers want the faster access and the best quality, all for free.

Many authors and pundits have freely offered their own predictions of the future of the Internet. We must interpret all of these musings in the knowledge that technology is ever evolving and new innovations will continue to be introduced. The Internet is a continually changing medium. The general public may in the future look back to our current excitement about our perceived current modern advanced technology and look at our system with disdain compared to their *New New Thing.*[109] In a similar manner, we

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[108] Michael Wolff, "Wolff: It's Not Really Net Neutrality," *USA TODAY,* http://www.usatoday.com/story/money/columnist/wolff/2015/02/27/its-not-really-net neutrality/24114171/.

[109] Michael Lewis tells the story of Jim Clark, one of the founders of Netscape, who was able to guess the "new new thing" on the Internet; Michael Lewis, *The New New Thing: A Silicon Valley Story,* 1 edition (W.W. Norton & Company, 2014).

can look back at the excitement of the general public to the introduction of the first banner ads on the Internet in 1994 and compare that to our current indifference to its primitive form.

Banner ads enabled all of the current goodies that we have available to us on the Internet to be developed and come alive for our convenience. Yes, the poor, lonely, frequently dismissed and scorned banner ads made possible so many of the terrific, innovative and imaginative creations that make our lives so much more pleasant and interesting.

Nobody can say where the Internet will be five years from now. This is a dynamically ever-changing field. There are many technical advances and new things happening all the time with media. Nobody knows what the new technological wizardry will bring us in the future. But we do know where it came from. All of our modern life Internet innovations owe a debt of gratitude and respect to banner ads, because they enabled the early funding of the industry. We do not always know where we are going, but we need to respect and recognize what we have and acknowledge from where we came.

Banner ads paved the way for a very bright future for all users of the Internet.

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