Streaming, Sharing, Stealing

Big Data and the Future of Entertainment

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Every kitten grows up to be a cat. They seem so harmless at first—small, quiet, lapping up their saucer of milk. But once their claws get long enough, they draw blood, sometimes from the hand that feeds them.

Frank Underwood, in the Netflix original series *House of Cards*

For the creative industries—music, film, and publishing—these are the best of times and the worst of times. New technologies have provided self-published authors, independent musicians, and other previously disenfranchised creators with powerful new ways of doing their work and reaching their audiences, and have provided consumers with a wealth of new entertainment options. Together these changes have produced a new golden age of creativity. But the same technologies also have changed the competitive landscape, weakened the control that established players can exert over both content and consumers, and forced business leaders to make difficult tradeoffs between old business models and new business opportunities. In the face of these changes, many powerful firms have stumbled and lost ground in markets they used to dominate.

One of the most profound examples of this shift in market power occurred when Netflix began to offer original programming. It's a fascinating case that illustrates many of the ways in which technology is changing the entertainment marketplace.

The story begins in February of 2011, when Mordecai Wiczyk and Asif Satchu, the co-founders of Media Rights Capital (MRC), were pitching a new television series, *House of Cards*, to several major

television networks. Inspired by a BBC miniseries of the same name, the proposed series—a political drama—had attracted top talent, including the acclaimed director David Fincher, the Academy Award–nominated writer Beau Willimon, and the Academy Award–winning actor Kevin Spacey. While shopping the broadcast rights to HBO, Showtime, and AMC, Wiczyk and Satchu approached Netflix about securing streaming rights to the show after it had finished its television run.[1]

In its pitches to the television networks, MRC had focused almost exclusively on the draft script for the pilot episode and on the show's overall story arc. The goal of these meetings was to secure a commitment from a network to fund a pilot episode. The challenge involved rising above the hundreds of other creators who were pitching their own ideas, competing for the small number of programming slots owned by the major networks. But that's just how the business worked—the networks called the shots. "We had a monopoly," Kevin Reilly, a former chairman of entertainment at the Fox network, has said. "If you wanted to do television, you were coming to network television first."[2]

Pilot episodes are the standard tool that television networks use to determine whether there is an audience for a show. Creating a pilot episode requires the writers to introduce and develop the show's characters, plot elements, and story arc in a 30- or 60-minute broadcast time slot. That's difficult under the best of circumstances, but it was particularly difficult in the case of *House of Cards*. "We wanted to start to tell a story that would take a long time to tell," Kevin Spacey said in 2013. "We were creating a sophisticated, multi-layered story with complex characters who would reveal themselves over time, and relationships that would take space to play out."

Even if a proposed show receives funding for a pilot episode, the funding comes with no guarantees to the show's creator—the network is still in complete control. If the network likes the pilot, it might initially order from six to twelve episodes, but that's rare. Usually the network decides to pass after seeing the pilot, and the creators have to start over.

For the networks, pilot episodes are an expensive way to gauge audience interest. Making a pilot episode for a drama series can cost between $5 million and $6 million,[3] and some in the industry estimate that $800 million is spent annually on failed pilots—that is, pilot episodes that never lead to series.[4]

Before their meeting with Netflix executives, Wiczyk and Satchu had gotten a mixed reaction from the television networks to their pitches for *House of Cards*. The networks had liked the concept and the talent attached to the project, but no network had been willing to fund a pilot episode, in part because the conventional wisdom in the industry—since no political drama had succeeded since the final episode of *The West Wing*, in 2006—was that political dramas wouldn't "sell."[5]

The reception at Netflix was different, however. Ted Sarandos, Netflix's Chief Content Officer, wasn't primarily interested in critiquing the show's story arc or invoking the conventional wisdom about the market's taste for political dramas. Instead, he came to the meeting primarily interested in data—his data—on the individual viewing habits of Netflix's 33 million subscribers. His analysis showed that a large number of subscribers were fans of movies directed by David Fincher and movies starring Spacey. The data also revealed that a large number of customers had rented DVD copies of the original BBC series. In short, the data showed Sarandos that the show would work[6] and convinced him to make an offer to license the show directly to Netflix,[7] bypassing the television broadcast window entirely.

But Netflix's innovative approach didn't stop there. Netflix didn't make the typical offer of $5 million or $6 million to produce a pilot episode that it might option into a half-season or full-season order. Instead, Netflix offered $100 million for an up-front commitment to a full two-season slate of 26 episodes. Netflix argued that it didn't have to go through the standard pilot process, because it already knew from its data that there was an audience for *House of Cards*—and that it had a way to target potential members of that audience as individuals.

Netflix's decision not to use a pilot episode to test the *House of Cards* concept garnered a skeptical response from the television industry. In

March of 2011, shortly after the *House of Cards* deal was announced, Maureen Ryan, writing for the online service AOL TV, made a list of reasons to doubt that *House of Cards* would be successful if delivered by Netflix. Her article closed with the following observation:

> The other red flags here? Netflix and MRC are going forward with this project without stopping to make a pilot first, and Fincher's never worked on a scripted drama before. We all like to make fun of TV suits, but sometimes those suits know what they're talking about. Many pilots in TV history have been tweaked quite a bit to make them better—in some cases, a lot better.[8]

The decision to bypass a pilot episode wasn't the only difference between Netflix's approach and that of the "suits." Instead of following the traditional broadcast model of releasing one episode per week to build an audience, Netflix planned to release all of season one's thirteen episodes at once. This was unheard of in the television industry. Television broadcasters are limited to a common broadcast schedule that must meet the needs of all their viewers, and a 13-hour show would crowd out all of the network's other programming for a day. Netflix had a clear advantage over the broadcasters: Its streaming platform didn't restrict viewers to watching specific episodes at specific times. Rather, they could watch episodes at their convenience, or even "binge watch" the entire season, as 670,000 people reportedly did with the second season of *House of Cards*.[9] They also didn't have to put up with the annoyance of commercial breaks, having paid, through their subscription fee, for the right to watch the show without them.[10]

In addition to opening up new opportunities and new flexibility for viewers, the "all-at-once" release strategy for *House of Cards* opened up new creative opportunities and flexibility for Beau Willimon, the show's head writer. When writing a typical weekly series, he would have to fit each week's story into precise 22- or 44-minute chunks, depending on whether the show would be broadcast in a 30-minute or a 60-minute slot. Then, within these slots, he would have to build in time at the beginning of each episode to allow viewers to catch up with plot elements that they might have missed or forgotten, time in the middle of episodes for act breaks to accommodate commercials (the

main source of revenue for broadcast content), and time at the end of episodes for "mini-cliff-hangers" to build interest for the next week's episode. In an all-at once release, none of these things were necessary, so Willimon was free to focus his energies on creating what he has called "a 13-hour movie."[11]

Knowing that they had an up-front commitment to a two-season deal, instead of the typical 6- or 12-episode deal, also helped the writers by giving them more time to develop their story. "When they opened the writer's room, they knew there was going to be a 26-hour [show], and they wrote accordingly," Sarandos said in a 2013 interview with *The Hollywood Reporter*.[12] "I think we gave the writers a different creative playground to work in, and the show is better because of it."

Netflix's subscription-based business model and on-demand content provided creative freedom for the writers in other areas as well. For example, Beau Willimon's script for *House of Cards* began by having Frank Underwood, the show's lead character, strangle his neighbors' injured dog—a scene that made a number of TV veterans at Netflix uncomfortable. "Early on," Willimon observed at the 2014 Aspen Ideas Festival, "there were a few people … who said, 'You can't kill a dog, you'll lose half your viewership in the first 30 seconds.' So I go to Fincher and I say, 'Hey, man, I'm really into this opening. I think it really works for the opening of the show. People are telling me we'll lose half of our viewers when we kill this dog. What do you think about that?' And he thinks for a second and goes, 'I don't give a shit.' And I go, 'I don't either.' And he says 'Let's do it.'"[13]

For most television shows, that sort of creative freedom would have been almost unthinkable. In the same Aspen Ideas Forum panel, the industry veteran Michael Eisner noted that if he had tried to include a similarly violent scene in an episode for broadcast television "the president [of the network] would call me, the chairman of the board would call me, I would be out in 10 minutes."

Why would this scene work for Netflix but not for broadcast television? First, Netflix wasn't pursuing an advertising-supported business model, so it didn't have to worry about offending its advertisers by

including a controversial scene. Second, because Netflix provided an on-demand streaming platform with many different options, it could risk offending individual subscribers with the content in some of those options. In a broadcast world, you can deliver only one show at a time to your audience, so that show must appeal to as many viewers as possible. But a Netflix subscriber who was repulsed by Frank Underwood's actions could choose from more than 100,000 hours of other Netflix content. In fact, by observing how individual viewers responded to this scene, Netflix was able to gather important information about their preferences. As Willimon said, "if you weren't going to be able to survive this dog strangling, this probably wasn't the show for you."

Customer data, and the ability to personalize the Netflix experience for its subscribers also gave Netflix new options to promote its shows. Incumbent television networks know the general characteristics of viewers from Nielsen estimates and other surveys, but they rarely know who their viewers are as individuals; even if they do, there is no easy way for them to promote content directly to those consumers. Typically, the best they can do for a new show is promote it alongside a similar established show, in the hopes that viewers of the latter will be interested in the former. Netflix, because it knew its customers as individuals, was able to do much more with *House of Cards*. It could see what each subscriber had viewed, when, how long, and on what device, and could target individual subscribers on the basis of their actual viewing habits. Netflix even created multiple "trailers"[14] for the show. One featured Kevin Spacey (for subscribers who had liked Spacey's movies); another featured the show's female characters (for subscribers who liked movies with strong female leads); yet another focused on the cinematic nuances of the show (for subscribers who had liked Fincher's movies).[15]

While Netflix was working hard to expand the use of digital channels to distribute and promote content, the networks were trying to find ways to *limit* the use of digital channels to avoid cannibalizing viewing (and advertising revenue) on their broadcast channels. Some people at the major TV studios understandably saw new digital

channels as a threat to their current revenue streams and judiciously avoided licensing content for digital delivery. It's hard to fault them for that choice—killing the golden goose is a good way to get fired in any business.

When shows *were* licensed on digital channels, they were typically delayed by 1–4 days after the television broadcast to avoid cannibalizing "live" viewership. This followed a standard practice in the creative industries: delaying the availability or degrading the quality and usability of "low-value" products (e.g., paperback books and DVD rentals) to protect revenue from "high-value" products (hardcover books, Blu-ray discs). The practice made sense—in an à la carte business model, price discrimination is the most economically efficient way for creators to sell content.

However, in order for price discrimination to work effectively, you must be able to control the availability, quality, and usability of how customers access content. In the analog era, creators had at least a fighting chance of maintaining such control. In the digital era, control is much more difficult to exert. Now, for example, instead of having to choose between watching a network's live broadcast via a "high-value" television platform or waiting 1–4 days to watch its digital version via a "low-value" platform, digital consumers have an alluring new option: a "no-value" (to the network) pirated copy that costs nothing, has no commercials, and could be watched in high definition almost immediately after the initial broadcast. In view of this allure, it isn't surprising that traffic from the popular file-sharing protocol BitTorrent accounted for 31 percent of all North American Internet traffic during peak-traffic periods in 2008.[16]

Piracy poses an even greater risk abroad, where a television show can be delayed by several months after its initial broadcast in the United States. These delays are driven by business processes that worked well in a world in which most promotional messages were local and in which international consumers had no other options to view programs. But if you live in Sweden, and your Facebook friends in the United States are talking about the new episode of *Under the Dome*, it's hard to wait two

months[17] for that show to be broadcast on your local television station, particularly when you know that it's readily available on piracy networks today.

One way to compete with piracy is by making pirated content harder to find and more legally risky to consume. To do this, studios must send out thousands of notices to search engines and pirate sites asking that their content be removed from webpages and search results. This strategy can be effective, but it requires constant effort and vigilance that some have compared to a non-stop game of *Whac-a-Mole*.[18]

Netflix, however, was able to pursue a fundamentally different strategy for distributing *House of Cards*. The company's business model was based on selling access to a bundled platform of on-demand content. Large-scale bundling was impractical for most physical goods, because of the manufacturing costs required for the individual products. But digitization eliminated manufacturing costs, making large-scale bundling of motion-picture content possible—more than merely possible, in fact: economic research has shown that large-scale bundling can generate more profit for the seller than can be generated with à la carte business models.[19]

Bundling also enables sellers to focus on new ways of delivering value to consumers. Price-discrimination strategies rely on reducing the attractiveness of some products enough that they appeal only to low-value consumers—something Reed Hastings, the CEO of Netflix, has referred to as "managed dissatisfaction."[20] In place of this managed dissatisfaction, Netflix was able to focus on convenience and accessibility: subscribers in all of the 41 countries the company served in 2013 could watch *House of Cards*, or any other Netflix program, using a single easy-to-use platform on any of their enabled devices without worrying about the legal, moral, or technical risks of piracy. Netflix would even keep track of where users were in an episode so they could pick up the series at the same spot if they needed to pause watching or switch devices. By delivering more value from their service than consumers could receive from pirated content, and by charging a reasonable fee for this extra value, Netflix hoped that most customers would find their streaming

channel more valuable than what they could find through piracy. And on the surface, this strategy seems to be working. In 2011, Netflix's share of peak Internet traffic exceeded BitTorrent's for the first time, with Netflix at 22.2 percent of all North American Internet traffic and BitTorrent at 21.6 percent.[21] By 2015 the gap had widened, with Netflix at 36.5 percent and BitTorrent at only 6.3 percent.[22]

In short, Netflix's platform and business model gave it several distinct advantages over incumbent studios and networks:

- a new way to green-light content (through detailed observations of audience behavior rather than expensive pilot episodes)
- a new way to distribute that content (through personalized channels rather than broadcast channels)
- a new way to promote content (through personalized promotional messages based on individual preferences)
- a new and less restrictive approach to developing content (by removing the constraints of advertising breaks and 30- or 60-minute broadcast slots)
- a new level of creative freedom for writers (from on-demand content that can meet the needs of a specific audience)
- a new way to compete with piracy (by focusing on audience convenience as opposed to control)
- a new and more economically efficient way to monetize content (through an on-demand bundled service, as opposed to à la carte sales).

Perhaps this all means that Netflix will be the "winner" in digital motion-picture delivery. But perhaps not. Netflix, after all, faces challenges from Google, Amazon, and Apple, which, by virtue of their existing businesses, have competitive advantages of their own: the ability to subsidize content to obtain data on customers, enhance customers' loyalty, or sell hardware. Netflix also faces challenges from the studios themselves, which are using platforms such as Hulu.com to vertically integrate into the digital distribution market.

We don't want to prognosticate in this book. We don't know which firms are going to come out on top in the next phase of competition in the entertainment industries. But we *do* know how technology is changing the entertainment industries. That's because for the past ten years, as faculty members at Carnegie Mellon University's Heinz College, we have led an in-depth research program to analyze the impact of technology on entertainment. We have worked with many talented people at leading motion-picture studios, music labels, and publishing houses to use data and advanced statistical analysis to understand how technology is changing specific aspects of their business. Our research with these firms has addressed every major consumption channel—legal or illegal, digital or physical—and has touched on nearly every major marketing and strategic choice facing these industries. We have learned an extraordinary amount. Our research has yielded new insights into the business and public-policy questions facing the copyright industries, unique access to industry leaders and datasets that have helped us address those questions, and an understanding of the challenges that companies in the entertainment industries face and the business strategies they can use to overcome them.

But while we were studying these specific questions, we began to ask a more general question: Is technology changing overall market power in the entertainment industries?

From a historical perspective, the answer to this question appears to be No. For 100 years, market power in the entertainment industries has remained concentrated in the hands of three to six publishing houses, music labels, and motion-picture studios. And these "majors" have been able to maintain their market power despite extensive shifts in how content is created, distributed, and consumed. In the twentieth century, low-cost paperback printing, word-processing and desktop publishing software, recording to magnetic tape (and later to videocassettes, CDs, and DVDs), radio, television, cinema multiplexes, the Walkman, cable television, and a host of other innovations were introduced. Through it all, three to six firms—often the same three to six firms—maintained control over their industries.

The key to the majors' dominance has been their ability to use economies of scale to give themselves a natural competitive advantage over smaller firms in the fight for scarce resources. Through these economies of scale, the "majors" successfully controlled access to promotion and distribution channels, managed the technical and financial resources necessary to create content, and developed business models that allowed them to determine how, when, and in what format consumers were able to access content.

Because these market characteristics persisted throughout the twentieth century, it is natural to conclude that no single change in computing or communications technologies would affect market power in the entertainment industries. But what if the entertainment industries are facing *multiple* changes? What if advances in computing and communications technologies have introduced a set of concurrent changes that together are fundamentally altering the nature of scarcity—and therefore the nature of market power and economic profit—in the entertainment industries? Consider the following changes that have been introduced by digital technologies:

- the development of digital distribution channels with nearly unlimited capacity, which shifted the entertainment industries away from a world in which content was distributed through scarce broadcast slots and scarce physical shelf-space
- the introduction of global digital piracy networks, which make it harder for content producers to generate profit by creating artificial scarcity in how, when, and in what format consumers are able to access entertainment content
- the availability of low-cost production technologies, which shifted the entertainment industries away from a world in which only a privileged few were able to access the scarce financial and technological resources necessary to create content for mass consumption—a shift that has resulted in an explosion of new content and new creative voices
- the introduction of new powerful distributors (Amazon, Apple, Netflix, YouTube) that can use their unlimited "shelf space" to

distribute this newly available content, and which are using a new set of economies of scale to achieve global dominance in markets for content distribution

• the development of advanced computing and storage facilities, which enables these powerful distributors to use their platforms to collect, store, and analyze highly detailed information about the behavior and preferences of individual customers, and to use this data to manage a newly important scarce resource: customers' attention.

Although a variety of experts have discussed various individual changes in the creative industries, no one has looked at them as a whole or used data to evaluate their combined effects rigorously. That's what we hope to do in this book. And what we think you'll see when you look at these changes as a whole, in light of the empirical evidence, is a converging set of technological and economic changes that together are altering the nature of scarcity in these markets, and therefore threatening to shift the foundations of power and profit in these important industries. That shift, in fact, has already begun.

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This is an issue that affects us all. If you are a leader in the motion-picture industry, the music industry, or the publishing industry, you may wonder how these changes will affect your business, and how your company can respond. If you are a policy maker, you may wonder how these changes will affect society, and how government can ensure the continued vitality of these culturally important industries. If you are a consumer of entertainment, you may wonder how technology will change what content is produced in the market and how you will access that content. This book provides answers to all these questions. Drawing on our access to market data and our knowledge of the entertainment industries, it integrates our findings and sums up ten years of research. It analyzes how technology is changing the market for creative content, and why—right now, in fundamental ways—these changes threaten the business models that have governed the entertainment

industries for 100 years. And it proposes practical ways in which major publishers, music labels, and studios can respond.

We hope you caught the end of that last sentence. Many pundits argue, sometimes with glee, that content creators and markets for entertainment are doomed because of how technology is changing the nature of scarcity in entertainment. We strongly disagree. On the basis of our research, we are optimistic about the future health of markets for creative content. Information technology makes some business models less profitable, of course; but it also makes possible new degrees of personalization, customization, variety, and convenience, and in doing so it introduces new ways to deliver value to consumers, and new ways to profit from delivering this value.

But you can't effectively pursue these new opportunities unless you understand the historical sources of market power and economic profit in the entertainment industries. In the next chapter we'll address two foundational questions: Why do markets for creative content look the way they do? What factors have allowed a small number of firms to dominate these industries?