

On Consumption Experience and Scale of Stakeholder-Based Disruption

Michael Haenlein

Eitan Muller

Roman Welden

December 2022

Michael Haenlein is a Professor of Marketing at ESCP Business School and holds the Chair of Responsible Research in Marketing at the University of Liverpool Management School (haenlein@escp.eu)

Eitan Muller is a Research Professor of Marketing at the Stern School of Business, New York University, and a Professor of Marketing at the Arison School of Business, Reichman University (emuller@stern.nyu.edu)

Roman Welden is Visiting Assistant Professor of Marketing at the Kelly School of Business, Indiana University (rwelden@iu.edu)

Summary

The theory of disruptive innovation, popularized by Clayton Christensen, has shaped the thinking of generations of managers. Unfortunately, despite its significant influence, it is much more a theory of why firms fail than a theory on disruption. Consequently, many evolutions that would conventionally be considered disruptive innovations, such as ride-sharing, smartphones, and video games, are not seen as such within this framework. Our article presents a new theory of disruptive innovation based on the change the innovation triggers among industry stakeholders, namely consumers, producers, suppliers and retailers, and producers in related industries. We propose a mechanism that drives disruption via a peripheral consumption experience that evolves and integrates into the core consumption experience. This shift in the core consumption experience, in turn, shifts the behavior of other stakeholders in the industry, eventually supplanting the incumbent technology. We provide a scale that allows measuring the degree of disruption an innovation represents and show that our concept better reflects the common understanding of disruptive innovations in the marketplace. We illustrate our theory using the video game ecosystem, which has seen substantial innovations over the past two decades, none of which would be considered disruptive in the traditional sense.

Increasingly often, our habits are challenged through the introduction of transformative innovation, and our lives are simply no longer as they used to be. You might remember (or imagine) a time before mobile phones (introduced in the 1980s), online shopping (Amazon was founded in 1994), social media (Facebook launched in 2004), or the video game Minecraft (released in 2011) – and you might remember how your days looked like before those innovations existed and after they became mainstream. New technologies disrupt not only our lives but also the day-to-day operations of companies in adjacent industries. It is, therefore, not surprising that the study of disruptive innovations has been a topic of interest for academics and managers for many decades.

One of the most popular theories in this space is Christensen's theory of disruptive innovation¹, which aims to explain why some firms fail and others don't. According to Christensen, one possible explanation for firm failure is that successful firms focus their resources on their most profitable customers and adapt their products or services to fit those customers' needs. However, in doing so, they neglect that these most valuable and profitable customers might not be a good source of general marketplace information. This is especially the case since innovative services that might disrupt an industry often come from the low end of the product/service/technology – a place where these high-end customers have neither interest nor expertise. This “low-end attack,” which initially does not attract much attention, might grow to be a high-quality service threatening the incumbent's survival.

Despite some limited criticism, aimed mostly at the empirical foundation of the theory², Christensen's theory has been hugely successful, a popular concept for the last 25 years, and the focus of many textbooks and case studies. However, the main failing of the theory is its emphasis on the firm and its products. This emphasis on the firm-product level, which might have been appropriate in the late 90s, misses the main point of disruption: Disruptive innovations often

inherently change the behavior of consumers and other stakeholders, and because of this profound behavioral change, some firms prosper while others fail. Concentrating on failing firms misses the point: Disruption begins with the consumption experience. Changes in the behavior of firms that serve them come second. In the end, some firms will succeed, and some will fail, but the disruption that has already occurred will continue to shift consumers' experiences in the long run.

Consider the case of the iPhone: It is clearly a major disruption in that it has considerably changed the behavior of consumers and, therefore, firms in that industry and related industries. In response to the substantial change in the behavior of consumers, Samsung prospered, and Nokia failed. It is intriguing to find out why two previously successful firms reacted so differently to the underlying change in consumer behavior – yet it is a question separate from the issue of whether the iPhone has been a disruption. Just suppose Nokia had taken the risk and investment required to make the switch from dumbphones to smartphones and would have succeeded as Samsung did. We would now have three successful firms producing smartphones in such a scenario. According to Christensen, no disruption would have occurred since no major firm failed. But even a naïve observer would see that the disruption smartphones introduced would still be in full force. It's not the case that the failure of firms is unimportant – it is. Yet firm failure cannot be the sole determinant of a disruption: Apple itself was radically changed due to the introduction of the iPhone, and this change is just as important as the failure of Nokia.

Thus, we need a new definition of disruptive innovations that depends on the disruption of the behavior of consumers and, therefore, of firms and that decouples the unwarranted alliance between disruption and failure of firms. Following this logic, we offer a new definition of disruption that extends beyond the firm and into all stakeholders, specifically the consumers

involved with the innovation. We thus propose a scale of disruption based on our definition of disruption as follows:

Stakeholder-Based Disruption³: We consider an innovation as disruptive to a given industry if it supplants the incumbent firms/tech and significantly changes the behavior and composition of consumers, producers, suppliers and retailers, and producers in related industries.

Note that the change in the composition of players in terms of the consumers can mean adding or subtracting major new segments. We will discuss such a change below when we talk about the video game industry and the emergence of a new segment of customers called spectators. A change in the composition of producers (in the focal market, as well as suppliers, retailers, and related industries) implies a change in the identity of the major players in the respective industries: Some firms will adjust while others will fail. We refer to this concept as *Stakeholder-based Disruption Theory*.

Figure 1 illustrates the process of disruptive innovation that starts with a change in consumer behavior and then radiates out to other players. It is tempting to consider the disruption's ripple effect linearly, as in the right-leaning red arrow of Figure 1. Such a case illustrates a major disruption affecting all stakeholders, such as the introduction of smartphones, that has indeed rolled out in the order the arrow implies: from consumers to producers, suppliers, and into related industries. However, other non-linear and discontinuous ripples can exist, as is shown in the left-leaning green arrow. An example of such a disruptive innovation is the technological substitution from LP records and record players to CDs and CD players that left producers, namely labels and artists, virtually unchanged, with "albums" as their main artistic and marketing medium, though caused consumers to upgrade their collection of LPs to CDs and suppliers to switch from vinyl to plastic.

--- **Insert Figure 1 about here** ---

In the following, we first provide a framework to explain the role of the consumption experience in understanding disruptive innovations and use the consumption experience to explain the stakeholders' role in the disruption process. We then propose a mechanism that drives disruption via a peripheral consumption experience that evolves and integrates into the core consumption experience. This shift in the core consumption experience, in turn, shifts the behavior of other stakeholders in the industry, eventually supplanting the incumbent technology. Next, we propose a five-item scale to capture the degree of disruptiveness new technologies have on relevant industry stakeholders. From here, we illustrate our theory using the video game industry – a disrupted industry that would not be qualified as being disrupted using Christensen's theory. We conclude the paper with the managerial implications of this study.

The Role of the Consumption Experience: Core and Periphery

Stakeholder-based Disruption Theory is based on the idea that disruptions are not oriented at the firm level but at the stakeholder level. Such an extended focus avoids counterintuitive results when applying Christensen's disruption theory. Look at the ride-hailing giant Uber as an example. According to Christensen's Theory, Uber is not considered a disruptive innovation⁴ since, from a firm perspective, the core service of getting a person from point A to B has remained unchanged, and the new service did not originate at the low end of the spectrum. This assessment provides an interesting contrast to the hospitality company Airbnb, which fulfills the criteria of being a disruptive innovation (as it was launched as a low-end attack), although arguably, the core service provided by Airbnb compared to traditional hotel companies has equally not changed.

These examples show that Christensen's theory can lead to unintuitive outcomes. Analyzing Uber under the Stakeholder-Based Disruption paradigm, provides a different answer. Uber's true innovation was not a structural change in getting people from point A to B but a change in the consumption experience and how riders obtain transportation. Instead of the customer having to flag down a taxi, they can now use a mobile app to plan their trip while simultaneously seeing the ratings of their specific driver. This occasionally comes with the bonus of lower cost due to increases in efficiency. However, even if Uber no longer exists tomorrow and its price advantage disappears, customer behavior will still have changed substantially to where customers now expect the option of easy ride procurement along with increased driver transparency. In this sense, Uber and the technology platform it is based on substantially disrupted the taxi industry. Indication for this can be found in the fact that taxi companies worldwide are launching apps similar in functionality to what Uber offers.

We propose that breaking the consumption experience into two categories, the core consumption experience and the peripheral consumption experience, allows firms to understand the origin of innovation and how to be at the forefront of innovation in their industries. We define the core consumption experience as the primary reason customers seek a particular product or service and the peripheral consumption experience as actions and decision points that customers must engage with to access the benefits of the core experience. We propose that the main reason for an innovation to be disruptive is that it causes a peripheral consumption experience to be integrated into the core consumption experience.

To illustrate this, let's go back to the Uber example. In the transportation procurement industry (pre-Uber), the core consumption experience was transportation from point A to point B. However, many peripheral consumption experiences come within this simple service, such as how

a consumer procures a ride or assesses the ride's safety. As Uber entered this industry, it initially appeared that its main disruption was on the supply side by outsourcing the cost of capital for vehicles and evading overcomplicated taxi licensing, reducing the transportation service costs. However, we argue that the true disruption occurred in the peripheral consumption experience by structurally changing how consumers obtained transportation and obtained information on drivers. Today, the ease of procurement is such a necessary part of the consumption experience for many customers that the once peripheral experience has become part of the core experience. Even as Uber's cost advantages are beginning to dwindle due to unionized workforces and increased governmental regulation, they are still a dominant player in the industry due to having the technological expertise to take advantage of the shifted core consumption experience.

To further illustrate the importance of the core and peripheral consumption experiences, Figure 2 provides a framework to understand how changes in the stakeholder consumption experience can impact firm and industry actions. Although each industry is different, our framework helps to understand the importance of viewing disruption from the standpoint of stakeholder behavior compared to firm actions.

--- Insert Figure 2 about here ---

Stage 1: Core Experience Maximization

When an industry is in a steady state of technology utilization, firms typically engage in core experience maximization. In this stage, firms focus on making small innovations in the core consumption experience to gain a competitive advantage. Two problems can occur when following such a strategy: First, since the core experience is typically well established, it is not easy to adapt it profitably, making innovations in the core experience comparatively expensive. The possible

rise in cost for delivering the core experience from such innovation can result in losing some share of the customer base. Second, as firms focus on the core experience, they pay less attention to possible changes in the peripheral consumption experience. However, disruptive innovations often occur when an innovation on a peripheral consumption experience is so successful that it causes stakeholders to shift their behavior to integrate that peripheral experience into the core consumption experience. Stage 1 in Figure 2 represents the pressure exerted on the industry from incremental innovations occurring within the core consumption experience. This pressure drives a non-negligible group of consumers out of the market because their core needs cannot be met profitably or their peripheral needs are not met. Over time, this focus on the core experience causes certain market segments to be underrepresented.

Stage 2: Peripheral Experience Innovation

Once a sufficiently large market segment has been ignored by the industry, the room opens for disruptive innovations to enter. This phenomenon is the underlying reason for Christensen's observation that innovations almost always come from the low end of quality and price. While the firms with the most resources compete on dimensions surrounding the core consumption experience, firms with fewer resources recognize there are ignored market segments that are gathering around specific peripheral consumption experiences and develop product innovations to address these unserved needs. While these firms may only provide the bare minimum regarding the core consumption experience, they address the need for a peripheral experience in such a way that shifts the expectations of the customers in the industry. The resulting disruptive innovation or "low-end attack" results from the shift in consumer expectations triggered by disruptive innovation.

In this stage, illustrated as Stage 2 in Figure 2, we observe that innovation changes the dynamics within the industry. Certain aspects of the peripheral consumption experience begin to exert pressure on the core consumption experience to the point that many customers are shifting their expectations of the core consumption experience. As this shift in consumer experience continues, only firms that can adequately address these peripheral consumption experiences can take over increased market share. Typically, the firms that caused the shift in stakeholder behaviors have an advantage over others because they already have the internal systems and technologies to leverage the new aspects of the consumption experience.

Stage 3: Adaptation of Consumption Experience

As stakeholder behaviors continue to shift, the industry begins to see a diffusion of peripheral consumption experiences into the core consumption experience – see Stage 3 in Figure 2. This shift does not occur with every customer group simultaneously but through a diffusion process by which the consumption experience adapts over time. As peripheral experiences integrate into the core experience, many elements once perceived as central to the core experience may now find themselves as peripheral experiences. On top of this, pushback within groups of stakeholders may prevent certain aspects of the innovation on peripheral experiences from taking over the core consumption experience. This adaptation leads to a stage of uncertainty for industries. Many different strategies can be pursued at this point, such as investing resources into the predicted new core consumption experience or betting that the disruptive innovation will not lead to long-term shifts in behavior. Eventually, given enough time, the consumption experience stabilizes, and the process can begin again from Stage 1.

How to Measure the Scale of Disruption?

Not all disruptions are the same: Some tear the industry to pieces. Consumer abruptly change their behavior, firms fail spectacularly, and new major opportunities appear in related industries. Examples of such disruptions are smartphones like the iPhone and video game streaming services like Twitch. Others lead to a gradual change in consumer behavior and cause minor changes in the practices of the participating firms. Look at the switch from LP records and record players to CDs and CD players. This technological substitution increased the quality of listening (arguably), increased the durability of the medium (definitely), and caused consumers to upgrade their collection of LPs to CDs (occasionally). Yet most producers merely switched production from vinyl to plastic, and more importantly, the artists remained with the “album” as their main artistic output. At the same time, consumers continued to accept this constrained album setup as their main listening format. Calling all three examples – smartphones, video game streaming, and CDs – “disruption” debases the term and renders it less useful to describe the underlying business phenomenon.

We thus propose a scale of disruption that allows measuring the scale of disruption. Recall that based on our definition, we consider a new technology as disruptive to a given industry if it supplants the incumbent technology and significantly changes the behavior and composition of consumers, producers, suppliers and retailers, and producers in related industries. Note that in the same way as relying on a single measure of firm failure is insufficient, supplanting the incumbent technology might be a signal for disruption⁵, but as the CD example shows, it cannot be the only signal to be considered. This leads to the following five criteria for the extent of the disruption:

1. It supplants the incumbent firms/tech in the industry

2. It causes significant changes to the behavior and composition of consumers who use the product/service
3. It causes significant changes to the practices and composition of the main producers in the industry
4. It causes significant changes to the practices and composition of suppliers and retailers in the industry
5. It causes significant changes to the practices and composition of the main producers in related industries

Rating each aspect on a scale from 0 (none), through 1 (moderately), to 2 (strongly), and summing them up gives a value of the degree of disruption ranging from 0 (no disruption at all) to ten (the ultimate disruption). To keep the term disruption meaningful, we propose that the smaller scale values, such as the abovementioned LP to CD substitution, will be called just what they are – technological substitution – and not disruptive innovation. Table 1 illustrates six recent major disruptions ranging from 4 to 10 on the disruption scale. Next, we demonstrate the two concepts – core and periphery consumption experience, and the scale of disruption – in a volatile and timely example: the video game industry.

--- Insert Table 1 about here ---

The Curious Case of the Video Game Industry: Is it a Disruption?

A timely example that shows the benefits of the stakeholder-based disruption paradigm as a model for understanding disruptive innovation compared to Christensen's theory can be found in the video game industry. Analyzing only the firm-product level, this industry has not seen any significant disruption since the 1980s. The same firm that produced Super Mario Brothers and Tetris over four decades ago (Nintendo) is still responsible for over half of the Top 50 best-selling video games of all time and remains one of the titans in the video game industry. Game

development today is roughly as expensive as it used to be before today's players were even born (it cost \$130m to produce Pac-Man at the time). The prices of the primary game consoles are more or less unchanged – the original Nintendo Entertainment System was sold at \$99 (\$280 in today's money) compared to \$300 for the most recent Nintendo Switch. Even Nintendo's margin percentage (gross profit over revenue) barely moved. It was 42% on average between 2005 and 2010 and the same value between 2015 and 2020. The same is true for the other major game publishers; thus, there is no indication that the industry experienced any major shift⁶.

However, such an assessment goes against everything we know about this industry and seems highly counterintuitive. Video games evolved from a niche activity relevant to teenage boys to a worldwide phenomenon that appeals to virtually all ages and genders. While early games were often limited to gaming arcades, today, 3.2 billion people play video games worldwide from their homes, and 90% of Internet users under 34 years consider themselves video game players. More importantly, an entirely new customer base has emerged over the past decade: the spectator. Instead of actively engaging in gameplay, these users watch other players on streaming services such as Twitch or in arenas filled with tens of thousands of people. This has created an esports industry worth \$1.3 billion and a video game streaming industry worth \$59.6 billion today while creating multiple new career paths and consumer consumption patterns. Thus, the industry's significant transformation becomes apparent only when taking a broader view and looking at the consumers and other stakeholders. To further explore this, we apply the stakeholder-based disruption paradigm to the emergence of Twitch in the video game industry to understand what has changed in the video game industry, even though no new major firms have entered the industry of video game creation.

From Periphery to Core: The Emergence of Video Game Streaming Platforms

In 2014, Amazon acquired a relatively unknown digital video streaming site called Twitch for \$970m, even though the site only had annual revenue of only \$16 million⁷. This purchase surprised many investors, not only because of the perceived over-valuation by Amazon but because Twitch was a social media site aimed at what was thought to be a niche segment of the population: video game players. Since then, Twitch has become one of the largest social media sites, with a market evaluation exceeding \$15b⁸. Most importantly, Twitch disrupted the video game industry to the point where playing a video game is no longer the sole core consumption experience for many consumers.

By 2010, almost all innovation in the video game industry was focused on core experience maximization (Stage 1) and specifically maximizing certain dimensions of video game design, specifically graphics and processing power. When Twitch first launched in late 2011, the three major competitors in the video game industry (Sony, Microsoft, and Nintendo) were on the verge of releasing their next generation of consoles (the PlayStation 4, Xbox One, and Wii U, respectively). Unlike the previous generation of consoles (the PlayStation 3, Xbox 360, and Wii) which radically redefined what was possible in video game design, this new generation only provided minor upgrades in the form of graphics and processing power. Given the relatively high design quality already available, these innovations generated only minor improvements for a significant cost. Consequently, these new consoles only marginally increased video game capability when global video game usage exploded (nearly 1.4 billion players worldwide in 2011)⁹.

At the same time, two growing segments of video game consumers were looking for new ways to engage with video game content, especially when physically playing the game was impossible. The first group, spectators, wanted to observe other players during their gameplay – a

concept not unfamiliar from the early-day gaming arcades. However, the current social media platforms (Facebook and YouTube specifically) were not suited to satisfy this peripheral consumption experience since they could not capture one of the most important aspects of gaming: the shared experience of playing a game with others. The second group, esports athletes, aimed to compete in major tournaments. Although these competitions were already gathering large in-person crowds at the time, their reach was limited as these communities did not have deep connections to the casual gaming communities, nor did they have the ability to broadcast these live events to groups with no prior knowledge of the competitions.

Twitch was able to satisfy to offer the peripheral experience innovation (Stage 2) necessary to serve both segments and emerged during this time as a way for gamers to consume additional video game content. However, different from viewing highlights of a game session, content popular on YouTube during this period, consumers could co-experience the game with the streamer and other consumers watching. Twitch became the most important social media site focused on video game streaming. It allowed influencers to produce live video game content synchronously with the consumption and interaction of the content by consumers and consumers to turn their video game hobby into a career by becoming full-time streamers.

Although Twitch seems like a simple adaptation of live streaming to the video game context and a peripheral innovation at best, it had dramatic effects on the video game industry and the core consumption experience of gaming. Before Twitch emerged, the only core consumption experience that was considered by the gaming industry was the gameplay itself. However, once Twitch emerged as a platform, the peripheral experiences of spectating, whether through consuming casual video game content or watching highly competitive esports events, quickly rose

in popularity. Through Twitch, the core consumption experience was adapted by integrating an aspect into it (Stage 3).

To showcase the extent to which video game streaming has become part of the consumption experience, look at some figures. Twitch had roughly 40 million users when Amazon purchased the company in 2014. Today, Twitch has 150 million unique users. In parallel other streaming platforms emerged, such as YouTube Gaming and Facebook Gaming (with 40 million and 110 million users, respectively). Along with this, esports, which started as small, firm-organized tournaments, now constitutes a \$1.4 billion industry and has events that surpass the viewership of the NFL Super Bowl¹⁰. The ability to be a spectator of video game content, whether it is in a casual community or a competitive environment, has gone from a peripheral consumption experience enjoyed by a small subset of consumers to merging with gameplay to become part of the average consumer's core experience with the video game industry.

The effect of streaming on stakeholders

This shift in the core consumption experience, in turn, has influenced other stakeholders' behavior in the industry. Video game publishers now recognize that streaming platforms have become an integral part of the consumption experience and have adapted their game creation. This resulted in two major changes in the industry. The first major shift is implementing the free-to-play monetization structure that many games now use. Instead of requiring consumers to pay upfront for a game (typically \$50-\$70), companies today allow consumers to access the core elements of the game experience for free. The monetization structure instead focuses on reaching the broadest player base possible to monetize through marketing revenue or in-app purchases of vanity or functional items. Video game streaming platforms help to diffuse content on these games

quickly to assist in growing their player base, while this structure helps streamers by reducing their content creation costs.

The second major shift is how games are created with the streaming experience at the forefront. Most major video games are now designed with streamer-friendly modes that make content creation easier by removing any copyrighted material, such as music or art, from the gameplay. Along with this, video game companies have altered the life cycle of games by leveraging consumer feedback and continued engagement. It is now standard practice in the industry to use consumer and streamer conversations on these platforms as crowdsourced feedback to continually reshape their game through minor updates. Also, as streamers continue to play a game, it keeps driving consumer re-engagement in the game. As such, new high-level games are created for multi-year lifecycles with multiple small updates to keep gaming content fresh. In parallel, the promotion of the industry has shifted with video game companies specifically designing free in-game content for streamers to give to their followers. This strategy helps drive more players to the game for the video game companies while synergistically supporting streamers.

Conclusions

In this manuscript, we presented a new theory of disruptive innovation based on the change the innovation triggers among industry stakeholders, namely consumers, producers, suppliers and retailers, and producers in related industries. To explain such stakeholders' disruption, we propose a mechanism that drives disruption via a peripheral consumption experience that evolves and becomes integrated into the core consumption experience. This shift in the core consumption experience, in turn, shifts the behavior of other stakeholders in the industry, eventually supplanting

the incumbent technology. We provide a scale that allows measuring the degree of disruption an innovation represents and show that our concept better reflects the common understanding of disruptive innovations in the marketplace. We illustrate our theory using the video game ecosystem, which has seen substantial innovations over the past two decades, none of which would be considered disruptive in the traditional sense.

Let's take a look at two of the six disruptions listed in Table 1, namely video games and apartment rental services. We see that relying on the failure of firms and low-end entry as a basis of disruption just does not cut it: In the video games industry, the same three main players still control the market: Nintendo, Xbox, and PlayStation. The disruption occurred mainly at the consumer level, with two new massive segments of older consumers and spectators. In the apartment rental services Airbnb, while certainly large, has not displaced established hotel services and hardly affected their prices.

The famous duck test of abductive reasoning says that if it looks like a duck, swims like a duck, and quacks like a duck, it is probably a duck. The same applies to disruptive innovations. If it looks like a disruption, then it is probably a disruption. And if the common definition does not classify it as one – well, then maybe it's time for a new definition.

Table 1: Scale of disruption in six major markets

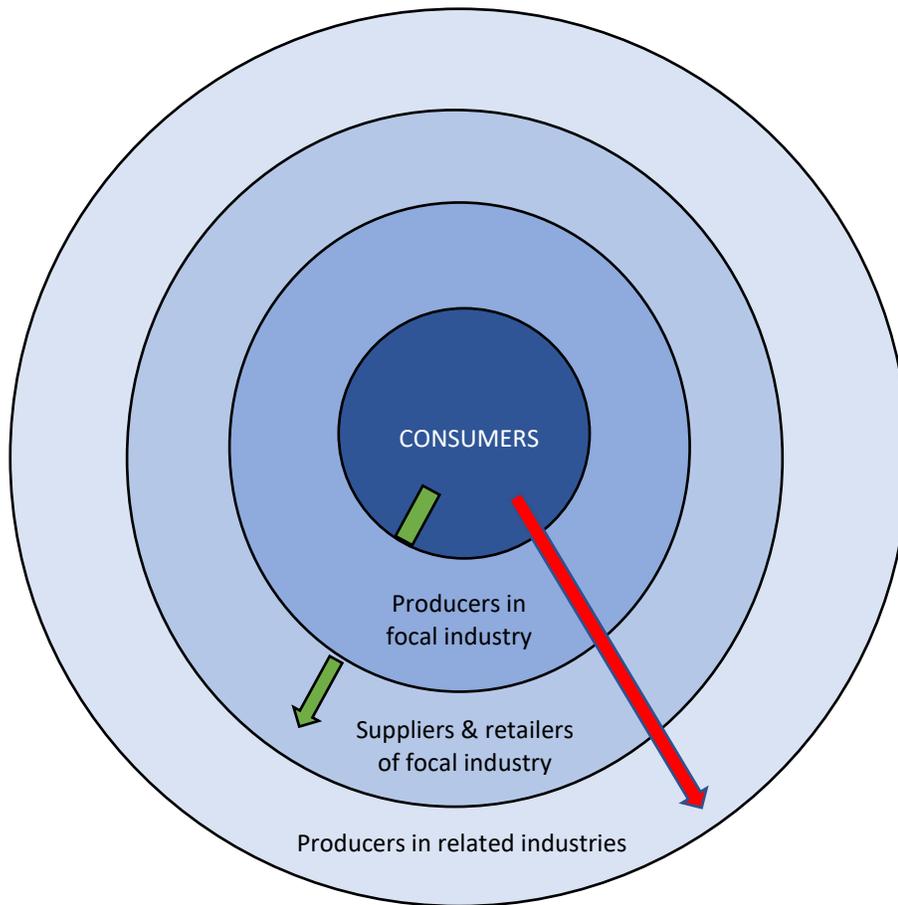
Panel 1: Major Disruptions (8-10 on the Disruption Scale)

	Smartphones	Video Streaming Services	Video Games
Supplants incumbents	2: Within seven years, overcame dumb-phones even in sub-Saharan Africa, the poorest region in the world	2: Disney+ and Netflix each have more subscribers than all multi-channel TV subscribers combined	1: Same incumbents still operating, yet lost ground to casual and hyper-casual mobile games
Consumers	2: Usage of apps, social networks, music, navigation	2: Consumers are “cutting the cord” and watching what they like at the time they prefer	2: Early niche market for teenage boys evolved into a worldwide market for all ages and genders. The emergence of a massive segment of spectators
Producers	2: Positive: Apple, Samsung, Huawei, Xiaomi. Negative: Nokia, Microsoft, LG	2: Providers such as AT&T regard multi-channel TV as cash cows and find other opportunities for growth	1: Same three main players control the market: Nintendo, Xbox, and PlayStation. Lots of new players in mobile games
Suppliers & Retailers	2: App publishers; Telecoms; Famously, a city in Hunan province, China, home of Foxconn	1: Content providers tailor their offering to streaming services	2: Platforms such as Apple Arcade, independent game publishers
Related Industries Producers	2: Video Games, Digital Cameras, Navigation Systems, High-speed wi-fi	1: Smart TVs, Roku, Amazon Stick, and other streamers are increasing sales	2: Streaming of televised games via Twitch. VR headsets. High-speed wi-fi
Total	10	8	8

Panel 2: Moderate Disruptions (4-7 on the Disruption Scale)

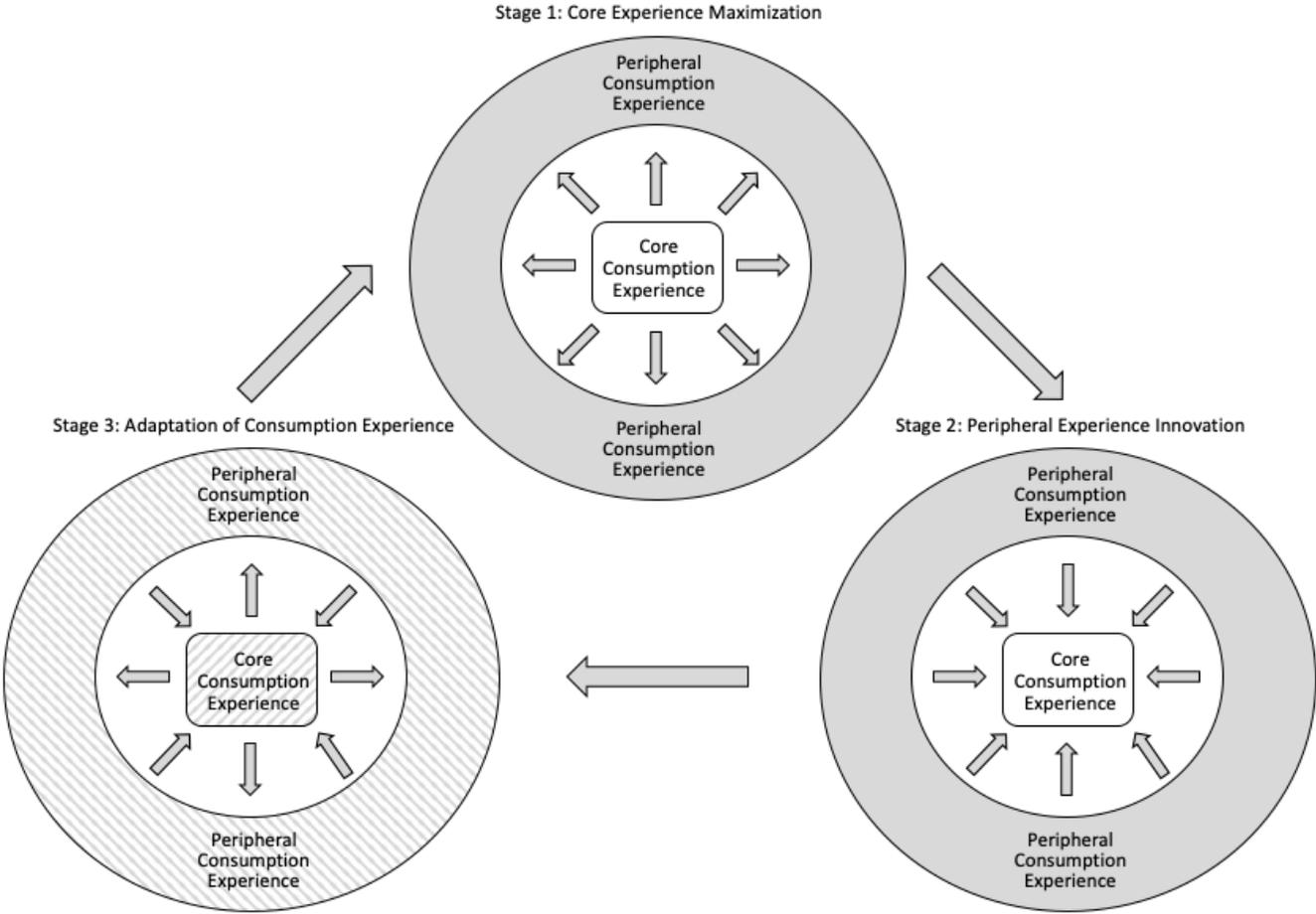
	Music Streaming Services	Ride-Hailing Services	Apartment Rental Services
Supplants incumbents	2: CDs and LP records are now only about 10% of the recorded music in the US and about 20% globally	2: As early as 2019, Uber overcame Yellow cabs in NYC and wherever regulation allows	1: At its best markets, Airbnb is less than 10%. It's bigger than the largest hotel chain, though
Consumers	2: Though there is some nostalgic return to LP records, consumers adopted the likes of Spotify and Apple music without looking back	2: Hailing a Yellow cab (or the equivalent) is now an inferior option	1: It's one more option on vacation. Not an option for business travelers
Producers	2: New players dominate markets, such as Spotify, Apple Music, and Tencent	2: Taxicabs are desperate, Medallions are "distressed assets"	1: Hotels, even in smaller cities such as Austin, TX, have hardly reduced price
Suppliers & Retailers	1: Largest studios hold share, though losing some. Artists adjust their music to some degree, mostly on channels such as TikTok	0: None	1: Homeowners are renting to Airbnb. Long-term renters are suffering
Related Industries Producers	0: Apple stopped the production of iPods in 2022	1: Rental cars to business travelers suffer	0: None
Total	7	7	4

Figure 1: Stakeholder-Based Disruption*



* The right-leaning red arrow is a major disruption that affected all stakeholders, such as smartphones (see Table 1), while the left-leaning green arrow is a technological substitution such as from LP records and record players to CDs and CD players that left producers, namely labels and artists, virtually unchanged (see text).

Figure 2: Core and Peripheral Consumption Experience



Notes

- ¹ Christensen, Clayton M. (1997), *The Innovator's Dilemma: When new technologies cause great firms to fail*. Boston: Harvard Business School Press. Christensen, Clayton M., and Michael E. Raynor (2003). *The Innovator's Solution: Creating and sustaining successful growth*. Boston: Harvard Business School Press.
- ² Lepore, Jill (2014), [The disruption machine: What the gospel of innovation gets wrong](#). *The New Yorker*, June 23. *Economist* (2015), [Disrupting Mr. Disrupter: Clay Christensen should not be given the last word on disruptive innovation](#), Nov 28. King, Andrew A., and Baljir Baatartogtokh (2015), "How useful is the theory of disruptive innovation?" *MIT Sloan management review* 57 (1), 77-90.
- ³ This definition is an expanded and revised version of the definition in Eitan Muller "Delimiting Disruption: Why Uber is disruptive, but Airbnb is not," *International Journal of Research in Marketing*, (37), pp. 43-55, which by itself was constructed based on three articles in the *Wall Street Journal* that summarized the effect of the iPhone, ten years after its introduction, on various stakeholders in the industry and related industries: Dou, Eva, [How the iPhone built a city in China](#). *Wall Street Journal*, July 3. Morris, Betsy (2017), [From music to maps, how Apple's iPhone changed business](#). *Wall Street Journal*, June 23. Tripp, Mickle (2017), [Among the iPhone's biggest transformations: Apple itself](#). *Wall Street Journal*, June 20.
- ⁴ Christensen, Clayton, M., Michael E. Raynor, and Rory McDonald (2015), What is disruptive innovation? *Harvard Business Review*, 93 (12) 44-53.
- ⁵ Sood, Ashish and Gerard J. Tellis (2005), Technological evolution and radical innovation? *Journal of Marketing*. 69 (3), 152-168. Sood, Ashish, and Gerard J. Tellis (2011), Demystifying disruption: A new model for understanding and predicting disruptive technologies. *Marketing Science*, 30 (2), 339-354. Chandrasekaran, Deepa, Gerard J. Tellis, and Gareth M. James (2022), Leapfrogging, Cannibalization, and Survival During Disruptive Technological Change: The Critical Role of Rate of Disengagement. *Journal of Marketing*, 86 (1), 149–166.
- ⁶ These figures are discussed in:
<https://retroonly.com/how-much-did-arcade-machines-cost-in-the-80s/>;
<https://www.someecards.com/usercards/viewcard/MjAxMS1hMjI4YmUyMTJmOWZhNTIz/>;
<https://www.quora.com/How-much-did-the-game-Super-Mario-Bros-cost>;
<https://www.usgamer.net/articles/top-10-biggest-grossing-arcade-games-of-all-time>;
<https://www.quora.com/How-expensive-was-the-Nintendo-Entertainment-System-when-it-came-out>;
<https://www.one37pm.com/gaming/consoles/how-much-is-an-original-gameboy-worth>

-
- ⁷ Bourgeault, Gary (2014), "Why Amazon Acquired Twitch: The longer Picture", Seeking Alpha, Retrieved Dec. 8, 2022 from: <https://seekingalpha.com/article/2457795-why-amazon-acquired-twitch-the-larger-picture>
- ⁸ Influencer Marketing Hub (2022) " Ultimate Guide to Marketing on Twitch", Retrieved Dec. 8, 2022 from: <https://influencermarketinghub.com/twitch-marketing/>
- ⁹ Statista (2022), "Video Gaming Worldwide - Statistics and Facts." Retrieved Dec. 8, 2022 from: <https://www.statista.com/topics/1680/gaming/#:~:text=A%20profile%20of%20the%20global,of%20COVID%2D19%20in%202021>
- ¹⁰ CNBC (2019), "This esports giant draws more viewers than the Super Bowl, and it's expected to get even bigger." Retrieved Dec. 8, 2022 from: <https://www.cnn.com/2019/04/14/league-of-legends-gets-more-viewers-than-super-bowl/whats-coming-next.html>