

Value Creation in the Video Game Industry: Industry Economics, Consumer Benefits, and Research Opportunities

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Abstract

In the past twenty years, the video game industry has established itself as a significant contributor to the global entertainment economy. Compared to more established entertainment industries such as movies and music, limited scholarly research in marketing has addressed the processes that create value for companies and consumers in the context of video games which are now available on multiple devices (e.g., consoles, portables, mobile devices) and through multiple channels (e.g., retail and online). The authors therefore develop a conceptual framework of value creation through video games, highlight important findings from extant research in marketing and other disciplines, and apply the framework to derive future research opportunities.

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Introduction

When the video game *Call of Duty: Modern Warfare 3* was released on November 8, 2011, it earned \$400 million within 24 hours in North America and the United Kingdom (Activision 2011). After 16 days, its revenues had passed \$1 billion (Waugh 2011). This compelling success is a manifestation of the enormous growth that the video game industry has experienced; over a 25-year period, it has grown annually by between 9% and 15% (Zackariasson and Wilson 2010). In turn, the economic value of video games has shifted, from a niche industry to a blockbuster business. Today, more Americans play video games than go to the movies (NPD Group 2009), and in 2012, global revenues were an estimated \$67 billion for console and portable hardware and software, as well as games for mobile devices (e.g., tablets and smartphones). Sales of so-called virtual goods within games generated an additional \$14.8 billion in 2012. These

totals are about five times higher than global music revenues (\$16.5 billion in 2011), higher than consumer book sales (\$69.4 billion in 2011), and similar to movie revenues (\$85 billion in 2011).² Video games thus appear to be the fastest growing and most exciting category of mass media for the coming decade.

The industry is characterized by not just growth but also a high degree of innovation and dynamics. In addition to consoles, video gaming takes place within interactive networks and on various mobile devices, including smartphones and tablets. It often bridges into and spurs innovation in other entertainment industries, such that some products even offer hybrid experiences (e.g., *Lord of the Rings* as game, movie, and other merchandise). Players can earn money from e-sports carried out in front of crowds and on live TV, or they can spend their money to buy virtual goods and expansions within games. In these virtual worlds, consumers manipulate and change their environment through realistic animation and exciting motion-

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² These values come from the following sources: DFC Intelligence (Gaudiosi 2012) for game hard- and software; Superdata (2012) for virtual goods, Bundesverband Musikindustrie (Statista 2013) for music; calculations derived from data from the Publishers Association, Spanish Ministry of Culture, Finnish Book Publishers Association, Wilkofsky Gruen Associates, and PWC (De Prato and Simon 2011) for books; and PWC (Goldsmith 2012) for movies.

sensor controllers; the games also offer capabilities to tackle social issues, train employees, and educate children (ESA 2012a). Technology pioneered by games applies to various fields, from military training programs to molecular biology and virtual showrooms for new product presentations (The Economist 2011). Games have even inspired management scholars to propose the concept of “gamification” to describe the application of psychological game design principles for motivating employees and engaging consumers (Zichermann and Cunningham 2011).

Although academic research on games has grown, marketing scholars still devote far less attention to this field than to other entertainment industries, such as movies, television, or music. We seek to spur further research on games by offering a conceptual framework that reflects the emerging roles of the highly dynamic video game industry and features both key players and products. With this framework, we identify the industry’s main business models, relationships among players, and means for value creation and success. In turn, we review extant research and locate it within our framework, then highlight areas for research that our framework suggests are exciting and fruitful for managers, academics, and consumers interested in video games.

Conceptual Framework of Value Creation in the Video Game Industry

Our conceptual framework indicates how value is created in the video game industry (Fig. 1). It details industry constituents and their relationships, including key players, products, and channels.

In this framework, we distinguish a vertical path that represents the “gaming environment”: the main actors within the industry, such as content providers (e.g., game producers such as *Activision*), platform providers (e.g., console producers such as *Sony*), and consumers, as well as their interrelationships. Then a second, horizontal path in the framework refers to the channels of distribution and communication that link content providers to customers. The platform is the focal element, but for this analysis, we take the perspective of the content provider, rather than the platform provider, because it is the game content that ultimately defines the industry.

The combined existence of content and platforms within the gaming environment constitutes a specific characteristic of the game industry’s business model. The two-sided systems hold interest for both researchers and managers. We also consider other revenue streams for games, such as in-game advertising, and address the spread of innovative platforms (e.g., smartphones) that are critical for encouraging ubiquitous gaming formats. Distribution issues relate to both traditional retail outlets and digital channels, including the role of the game platform itself. Finally, we investigate the particularities of producer-initiated communication, including one-directional communication through traditional media (e.g., television advertising), links as part of the game or through the game platform, and bi- or multidirectional communication in social media channels (e.g., social networking sites such as *Facebook*).

The framework further acknowledges the important roles of three additional institutions for the value creation process of video games. First, the video game industry is closely linked to other

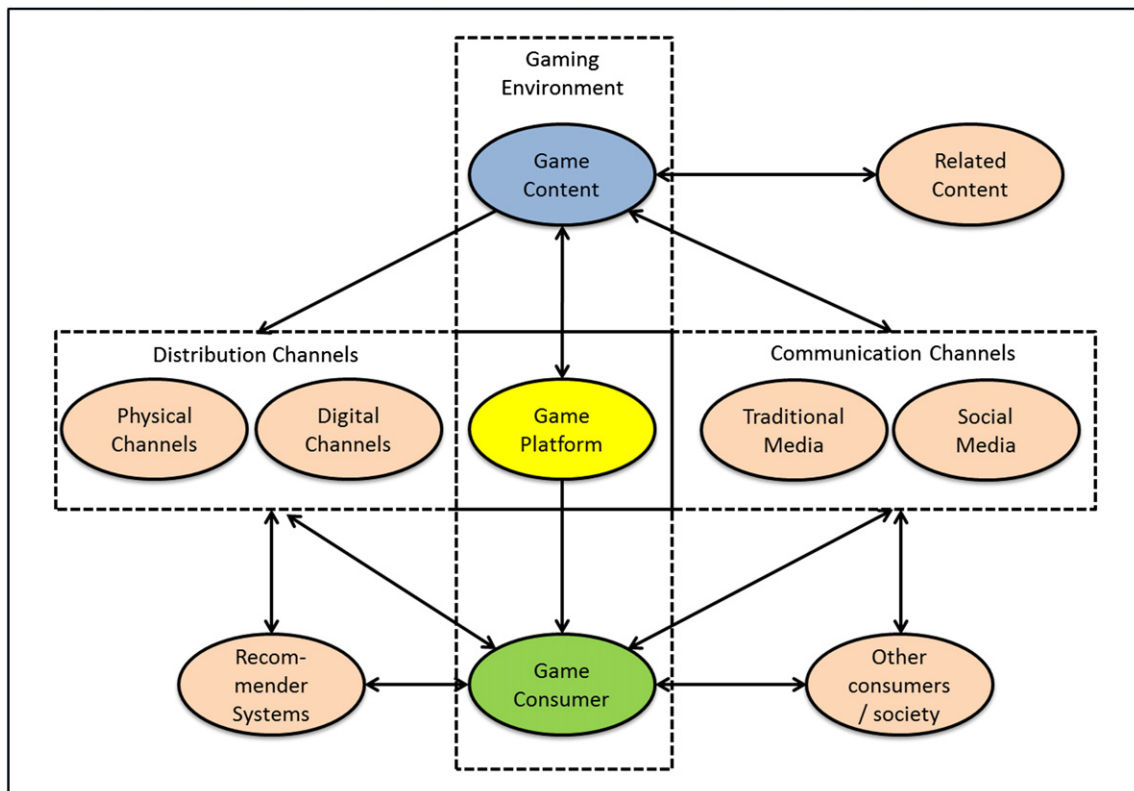


Fig. 1. Conceptual framework.

entertainment industries such as motion pictures. Such industries generate “related content,” which can provide inspiration for games (e.g., adaptations of film narratives), or vice versa (e.g., *Lara Croft: Tomb Raider* movies). Second, the value of games depends on the technological infrastructure. As the number of available game titles has been growing immensely, automated recommender systems have emerged as important sources of information for consumers who seek the “right” game. They also might offer business opportunities for game producers to market the “long tail” (Anderson 2006). Third, other consumers influence an individual’s decisions and the value that he or she derives from games through communicative or behavioral recommendations (e.g., word of mouth, observational learning), or through their mere adaptation of the game as a result of network effects. Games have also been argued to impact consumers’ personalities (e.g., stimulate violence) and, subsequently, society as a whole; as we show, findings are complex and multi-faceted.

In the next section, we discuss each element in more detail. Our discussion does not aim for comprehensiveness; rather, we touch on those issues that we consider the most important for understanding the economics and business of games and for influencing future growth in the industry. For each element and link, we review the current state of knowledge and highlight key research opportunities where appropriate. We enrich our

discussion with descriptive insights from market data about video games released between 2005 and 2011.

The Gaming Environment

Platforms and Content

Game Platforms

Video games are a “cyclical business” (Ward, quoted in White 2013). That is, the performance of software titles depends strongly on the technical capabilities of the hardware for which they are designed, and these capabilities have advanced dramatically in the past 30 years. The Atari 2600 system, released in 1977, was one of the first video game consoles that contained a CPU, featured a processor running at 1.2 MHz, and offered 128 bytes of memory. The newest PlayStation 4 console will contain an 8-core processor running at 2 GHz and have 8 GB of memory installed. Each generation of hardware also has its own lifecycle; Fig. 2 illustrates these lifecycles for six recent console generations. Because each game is designed for a specific console, a generation’s lifecycle stage affects video games sales at that point in time.

Today, game consumers can choose among a wide range of gaming platforms. In addition to the current generation of video

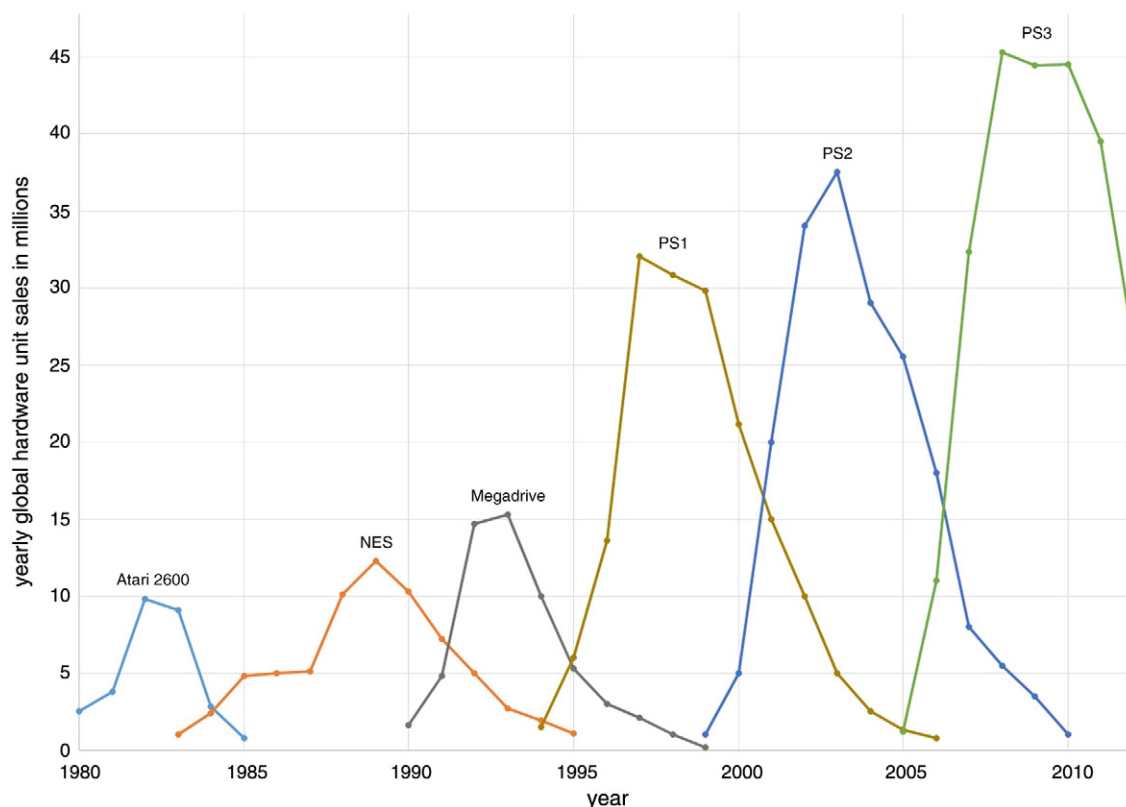


Fig. 2. Hardware sales for console generations over time. *Notes:* The first generation in this figure, “Atari,” consists of the Atari 2600 and 5200 consoles; “NES” refers to the Nintendo Entertainment System and Sega Master System; “Megadrive” includes the Sega Megadrive/Genesis, Super Nintendo Entertainment System, and 3DO; “PS1” indicates Sony PlayStation, Nintendo 64, and Sega Saturn; “PS2” encompasses the Sony PlayStation 2, Microsoft Xbox, Nintendo GameCube, Sega Dreamcast; and “PS3” features the Sony PlayStation 3, Microsoft Xbox 360, and Nintendo Wii. The central processing unit speed and memory developments over these generations were as follows: Atari 2600 = 1.2 MHz/128 bytes, NES = 1.8 MHz/2 KB, PS1 = 33 MHz/128 kb, PS2 = 294 MHz/32 MB, and PS3 = 3.2 GHz/512 MB. Sources: Durchlacher, The Economist, VGChartz.com.

game home consoles (i.e., Microsoft’s Xbox 360, introduced in 2005; Sony’s PlayStation 3, from 2006; Nintendo’s Wii and its successor Wii-U, from 2006 and 2012), various firms have released handheld systems (e.g., Nintendo DS, PlayStation Portable) that have enjoyed solid market shares since 2005. In addition, increasingly powerful smartphones make for attractive platforms for video games. Major operating systems such as Google’s Android or Apple’s iOS enable consumers to play variations of popular console game titles (e.g., FIFA 12 from EA) and games specifically developed for mobile devices (e.g., Cut the Rope from ZeptoLab), usually for much lower prices (from \$0 to \$6) compared with the charges for software for handhelds (\$30–\$40).

Fig. 3 details the annual revenues for these major platforms over time. Despite the strong growth of mobile games (for smartphones and tablets), the financial success of individual mobile game titles is considerably lower than for console games. For example, Rovio Entertainment, the developer of Angry Birds and other bestselling series for mobile devices, generated total

revenues of just €152 million in 2012 (Rovio 2013), whereas bestselling console games such as Grand Theft Auto IV generated more than \$500 million during the release week only (Totilo 2008). But the data also indicate growing cannibalization between handheld game systems (with lower processing power, resolution, and memory than consoles) and smartphones, putting greater pressure on the handheld business. To counter technical assimilation between handhelds and smartphones, platform companies have introduced some new features, such as three-dimensional displays (Nintendo 3DS) which, however, have yet failed to provoke strong consumer interest. With the help of social media tools, such as crowdfunding, plans also have emerged to use smartphone technology to develop new, low price consoles; the new Ouya console uses an Android operating system to compete with standard high-definition consoles (Kelly 2013).

Competition among different platforms and the growth of smartphone-based games offers great research potential. How does the rise of new platforms affect customers’ perceptions of

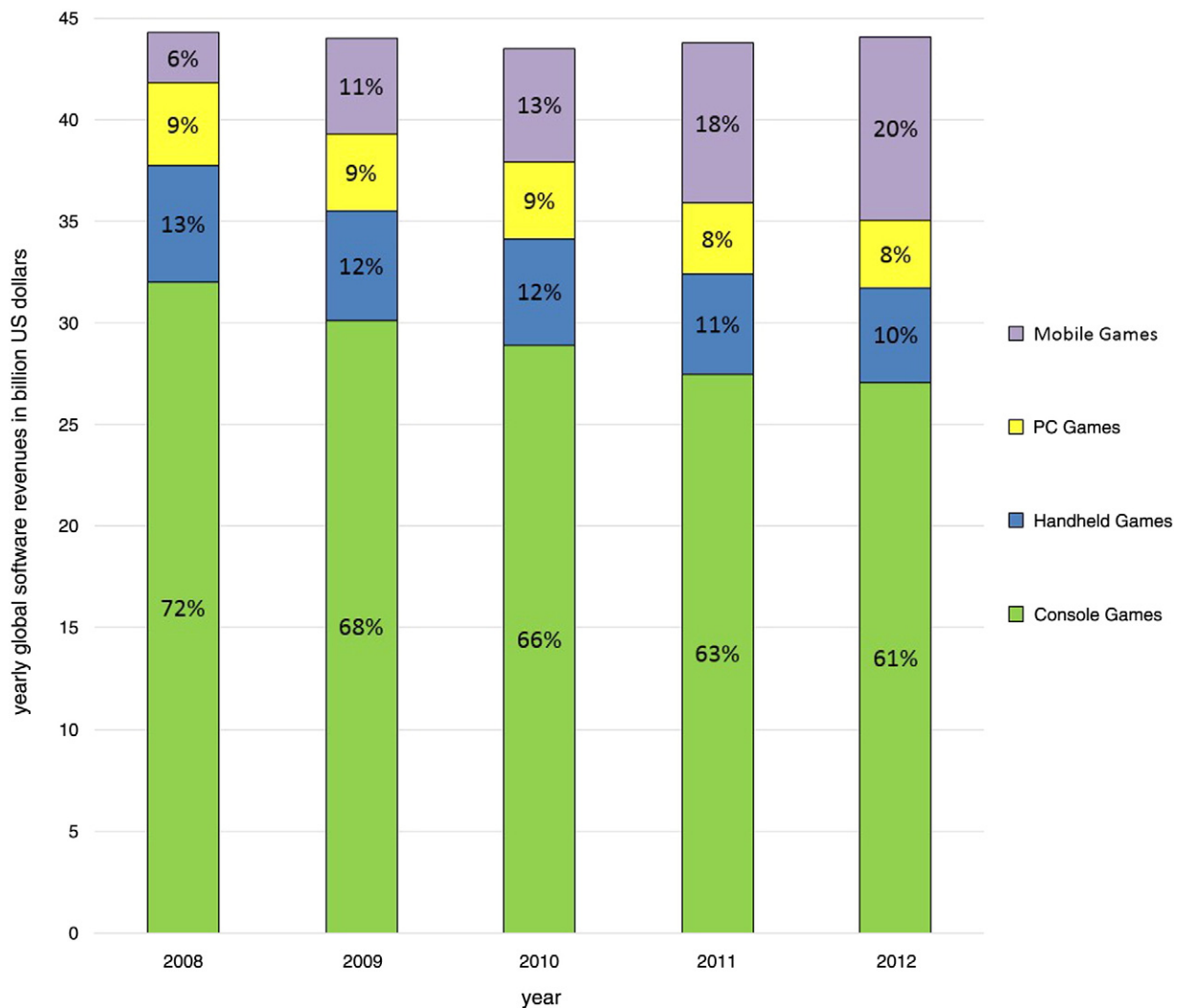


Fig. 3. Aggregated software sales for different platforms over time. Notes: The numbers exclude additional revenues of downloadable gaming content (DLC add-ons). “Console Games” include Microsoft Xbox and Xbox 360, Sony PlayStation 2 and 3, Nintendo Wii and WiiU. “Handheld Games” include Nintendo DS and 3DS, Sony PSP and PSVita. “PC Games” include games for personal computers that can be bought at retailers such as Amazon.com and Walmart (no browser games and no games in social networks). “Mobile Games” include games for Apple iOS, Google Android, Windows Phone 7 and 8, Nokia Symbian, and Blackberry. Sources: Gartner, NPD Group, PricewaterhouseCoopers, Wilkofsky Gruen Associates.

and demand for console hardware and games? Will the market divide between expensive high-end consoles and advertiser-financed low-end games? Is the recently observed decline in demand for consoles a reflection of a standard demand cycle, or does it signal a trend of consumers switching from consoles to smartphone games? How should producers of consoles and games react: Introduce low-end versions of high-end game titles to generate additional revenues and increase brand awareness, or avoid this route to prevent cannibalization risks?

Game Characteristics and Content

Similar to other entertainment products, such as movies or novels, video games consist predominantly of experience qualities. That is, consumers know whether they like a game only after they have played it. At least for console games (for which prices are clearly higher than for books, music albums, or movies), this experiential nature implies substantial risk for consumers and influences decision making. Similar to other

kinds of media entertainment, game content also can be easily digitized or is even digital by nature, which affects distribution.

Game content is highly heterogeneous. Fig. 4 displays the distribution of genres of console titles released between 2005 and 2011 in absolute terms, as well as weighted by the number of units sold (data from VGChartz.com). The distribution of genres is somewhat similar for the Xbox 360 and PlayStation 3, with action games and shooters being the most popular genres, but differs for the Wii, for which sports titles enjoy strong demand, indicating the different positioning of the consoles.

These numbers indicate that a game’s genre influences its success potential among buyers, yet we know little about the drivers of games sales, particularly when compared with other areas of entertainment such as movies (e.g., Eliashberg, Elberse, and Leenders 2006; Hadida 2009) or television (e.g., Hennig-Thurau, Fuchs, and Houston 2013). In a first exploration of the drivers of the demand for games, Cox (forthcoming) stresses the significant influence of major

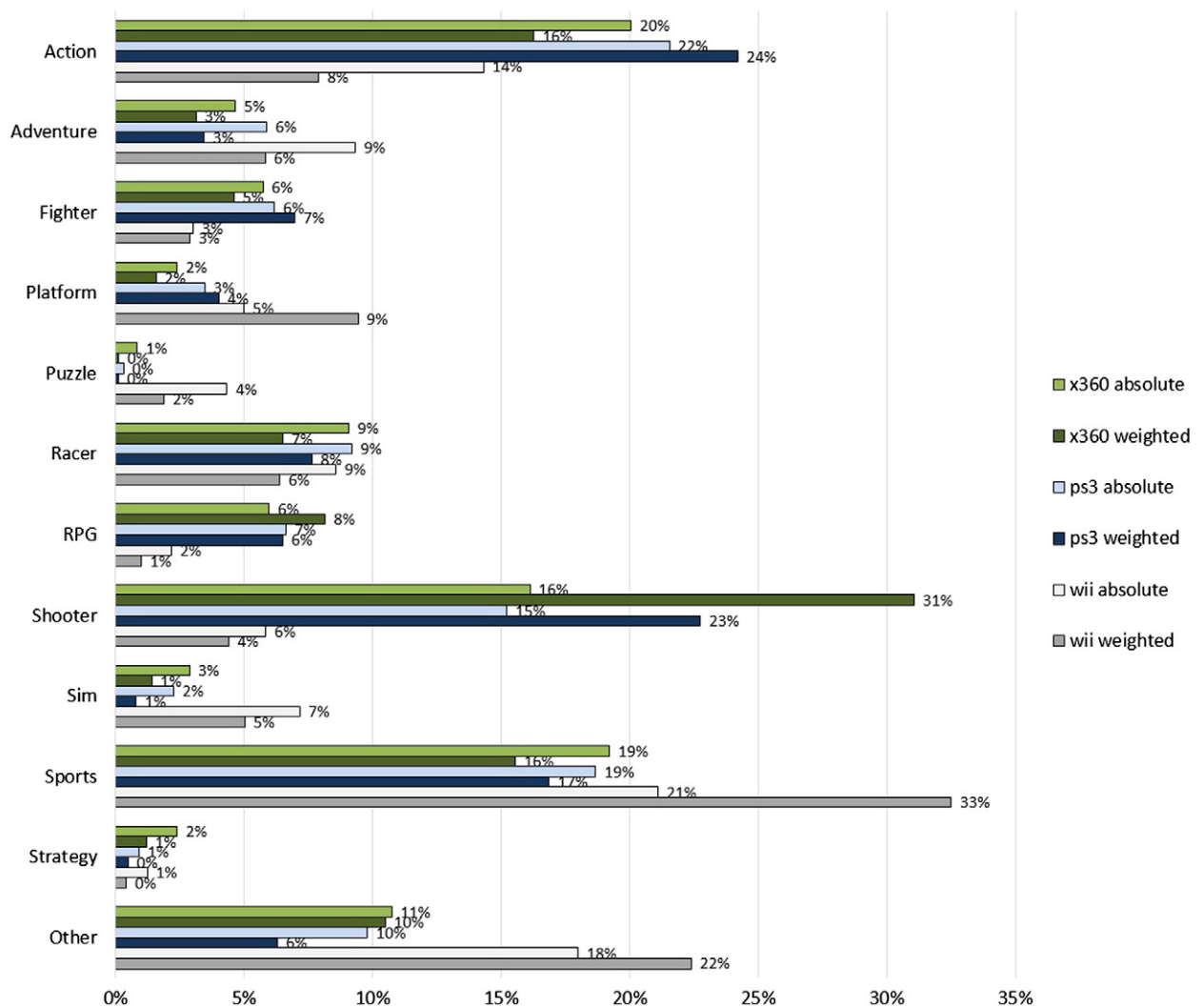


Fig. 4. Distribution of game genres for leading console platforms. Notes: x360 = Microsoft Xbox 360; ps3 = Sony PlayStation 3; wii = Nintendo Wii; RPG = role-playing game. Sample: Video games, released in the U.S. between 2005 and 2011 for Microsoft Xbox 360 (838 titles), and between 2006 and 2011 for Sony PlayStation 3 (664 titles) and Nintendo Wii (1062 titles). Source: VGChartz.com.

publishers and professional game reviews, and also finds significant effects for several genres, mature age ratings, and sequels. However, as his model leaves out potentially important factors such as game advertising, non-expert evaluations (e.g., Amazon.com reviews), and the hardware side of the system (see Economics section below), future research on the factors that increase the hit probability of games is desirable. Future research might also investigate game-specific elements such as games' technical quality (e.g., graphics, sound, and realistic in-game behavior; Sweetser and Johnson 2004) and interactions between such factors and genres/platforms.

Economics of Games

The market for video games is characterized by an oligopolistic structure and indirect network effects between consumers and content and platform providers. Direct network effects among these actors and advertisers also influence the success of games that can be played online (Liu 2010). In their business models, games traditionally generate revenues through consumer sales; however, various complementary and alternative revenue models also have emerged.

Market Structure

Fig. 5 shows the distribution of market share among game producers, which highlights the oligopolistic character of the market. A handful of big players account for most of the overall market (62% for top 10 game producers in 2011), but concentration is less than in other entertainment industries such as movies. The systematic interrelations of hardware and software markets, which we discuss in more detail subsequently, make it interesting to note that the three leading hardware manufacturers (i.e., Microsoft as the producer of the Xbox, Sony and the PlayStation, and Nintendo and the Wii) are also the top three software producers.

Indirect Network Effects

Several academic studies stress that the game market is two sided, and that indirect network effects connect game platform (hardware) sales to game content (software) sales. The concepts of two-sided markets and indirect network effects are related, in that most markets with indirect network effects are two sided (Rochet and Tirole 2003). In a two-sided market, the benefits of two distinct stakeholders of a common product are influenced by the respective other stakeholder (Rysman 2009). In the case of games, hardware producers such as Sony earn money from

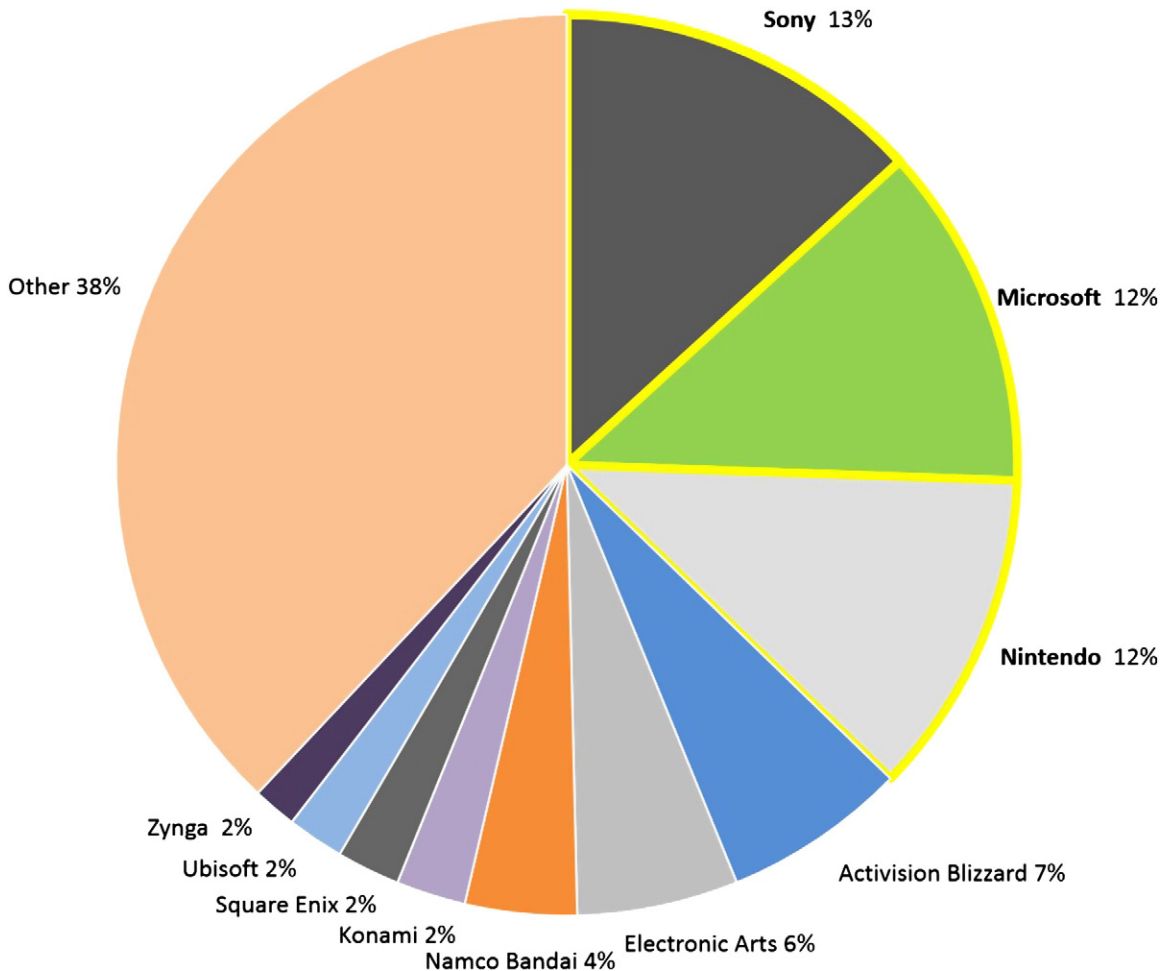


Fig. 5. Market shares of console games producers (2011). Source: IFM (mediadb.eu).

selling consoles to consumers (market 1) and from selling game licenses to game producers (market 2); a game platform with more consumers is more attractive for game producers, and vice versa (Gretz 2010a).³ Indirect network effects work in the same way; here, an increased variety of one product (software titles in the context of games) increases the value of another product (a console such as *PlayStation 3*) for customers, which in turn can have an effect on the first product (through an increased attractiveness for game producers; Clements and Ohashi 2005).

In terms of empirical explorations, Clements and Ohashi (2005), using sales data for eight consoles and titles between 1994 and 2002, provide evidence for the indirect network effects; they find that the number of game titles for a console influences console sales. Since then, it has become a controversial question whether it is the quantity of available software titles (i.e., indirect network effects) or their *quality* that affect hardware sales. In his study, Gretz (2010a) finds that the number of available games positively influences hardware demand, without including a measure of games quality. In a follow-up study, Gretz and Basuroy (forthcoming) show for data between 1995 and 2007 that the strength of this network effect weakens toward the hardware's lifecycle, which they explain with satiation effects. However, Binken and Stremersch (2009) report that it is rather high-quality "superstar" software that exerts a positive impact on hardware sales and may increase console sales by an average of 14% in the five months after its launch. Future research is needed to understand the impact of indirect network effects on hardware and its context factors more closely.

Regarding the impact of consoles on game titles, Clements and Ohashi (2005) also show that the "installed base" of consumers influences the number of game titles by offering incentives to content providers for developing new games for successful platforms. Venkatraman and Lee (2004) looked explicitly at developers' decisions to produce new games; using data on 2,815 game launches between 1995 and 2002, they show that the dominance of a platform (measured as the share of game titles being available for it) drives development decisions. Consistent with this, Stremersch et al. (2007, p 64), in a study of 156 game titles released between 1989 and 1991 for *Nintendo's Game Boy* handheld console, find that the diffusion of the platform influenced "future software availability." As an extension, Gretz (2010a) reports, using game console data from 1976 to 2007, that not only the "installed base," but also the quality of the hardware (measured with a technical score that combines CPU performance and memory size; see also Gretz 2010b) increases the number of software titles.

Indirect network effects have multifaceted implications for marketing both consoles and titles, and relatively little is known

yet how marketing has to differ from the standard "one-sided" constellation. Existing work focuses particularly on pricing. Clements and Ohashi (2005) recommend a penetration pricing strategy for hardware with lower margins at the beginning of a console's life cycle, which helps the hardware provider build a strong installed base that enhances the long-term success of the platform by attracting attractive software titles. This recommendation also is consistent with declining price elasticity for hardware over the console's life cycle. In a study of the "console war" between *Nintendo's 64* and *Sony's first PlayStation*, Liu (2010) estimates a demand system and concludes, from policy simulations, that *Nintendo* (which focused on generating upfront profit margins by applying a skimming pricing approach) might have won the competition if it had lowered its entry price to achieve a larger installed base before *Sony* entered the market. Future research could address more deeply multiproduct pricing for games and consoles (i.e., how the change of a console price affects the demand of games and vice versa). This might enable producers of hardware and software such as *Microsoft*, *Sony*, and *Nintendo* to develop better strategic decisions about bundling opportunities, but also to answer the question which market they should subsidize to rise their companies' profitability. Here, game scholars could gain insights from general theoretical discussions of indirect network effects on pricing (e.g., Parker and Van Alstyne 2005; Rochet and Tirole 2006).

In terms of product management, an indirect network structure implies that console producers benefit from exclusive software content (which increases the relative attractiveness of their platform). Take the example of *Tetris*, which determined the *Game Boy* handheld device's success (Johnson 2009). Such "singlehoming" (instead of "multihoming") limits the sales potential of the game though, because it might not be available to the installed bases of alternative platforms (Corts and Lederman 2009). Landsman and Stremersch (2011), studying sales data for 12 video game consoles, find that multihoming negatively affects platform sales to an extent greater than would be predicted just on the basis of the number of available titles. However, the negative effect of multihoming decreases with greater platform age and market share, because both traits help reduce consumers' adoption uncertainty. These developments suggest the need to identify conditions in which developing exclusive content can attract game producers. That is, what incentives from platform owners are necessary to encourage a single- versus multihoming strategy? For example, *Microsoft* paid \$50 million to ensure two episodes of *Grand Theft Auto IV* would be available exclusively on its *Xbox 360* platform (Take-Two 2007). For nascent platforms, achieving single-homing from content providers likely is more difficult.

Platforms also seek alternative ways to increase their exclusivity. For example, some of them have started providing non-gaming content, such as movies, television, and music. They also establish online user networks such as *Xbox LIVE* or the *PlayStation Network*, which allow players to communicate with friends, buy virtual items, and reach game-related goals. Such networking in turn raises switching costs. In this sense, the platforms attempt to substitute the potential of indirect networks for that of direct networks, which we discuss subsequently.

³ Although no definite numbers about the license fees for console systems are revealed, they are rumored to be about \$80,000 for a single game title for one console system only. Fees also exist, but are usually substantially lower for arcade/indie games for handheld devices; for example, *Sony* charges usually \$99 for an arcade/indie game for their *PlayStation Vita* and has even lowered it to \$0 during the summer of 2013 (Thomson 2013). The licensing model goes back to the 1980s, where it was introduced by *Nintendo* and was then adapted by all major console producers (Crandall and Sidak 2006).

The existence of indirect network effects also has implications for communications. In a study of the *PlayStation* and *Nintendo 64* consoles, Dubé, Hitsch, and Chintagunta (2010) stress the importance of consumer expectations about platform developments and argue that consumers choose the platform they expect to win the “standard war.” Thus signaling is critical, in that platform providers can benefit from sending convincing signals to consumers regarding the superiority of their platform. However, it is unclear how such signaling can achieve sufficient credibility and effectiveness.

Other important management questions relate to the timing of entry. Indirect network effects suggest the value of a pioneer strategy, which enables the first-mover to build its installed base; however, research also notes the important role of (technical) quality for consumers of games. Because console lifecycles last several years, finding the right time to introduce a new console is difficult. The decision becomes even more complicated when we account for the influence of a previous console generation, in that strong cannibalization arises between console generations. A related issue involves backward compatibility (Dubé, Hitsch, and Chintagunta 2010). In the past, consoles generally have been incompatible with previous generation titles (e.g., *PlayStation 2* games could not be played on most models of the *PlayStation 3*), yet such compatibility would increase the attractiveness of new consoles and might accelerate their diffusion, to help build the installed base for the new console. Researchers should investigate whether the dominant approach, intended to force consumers to replace their old titles with new ones, really makes economic sense.

Further, challenges exist for the management of customer equity (Blattberg and Deighton 1996). As for hardware manufacturers that also offer game titles, interrelated pools of customers exist, so that equity should be measured and modeled jointly. Future research could investigate how this can be accomplished. For example, research could explore how dissatisfaction with a game affects a customer’s hardware demand and vice versa. Do consumers distinguish between games and consoles when they are disappointed with a playing experience? Of course, consumers have already bought the particular console at this point, but their negative emotions could have an effect on the hardware brand choice of future console generations (e.g., *PlayStation 4* and *Xbox One*).

Finally, we know little about how research related to indirect network effects applies to smartphones. By the fourth quarter of 2012, the majority of spending in the *Apple iOS App Store* and *Google Play Store* was devoted to games (Ward 2013), even though smartphones serve more purposes than gaming. With their extended network stakeholders (e.g., telecommunications companies, hardware suppliers, operating system providers), smartphones are subject to more complex dependencies and have broader opportunities to generate revenues than pure game consoles. In this case, which network dominates? What role do game titles serve in such complex network constellations?

Direct Network Effects

In addition to indirect networks, video games are affected by direct network effects: A large customer base increases the utility

of a video game product (Shankar and Bayus 2003). Many games offer benefits by enabling consumers to play over the Internet with other consumers they know, either personally or as part of the gaming community. Online multiplayer games might represent a particular feature of console titles or the primary type of a game. In direct consumer networks, we find massively multiplayer online games (MMOGs), such as *World of Warcraft*, a game with an active user base of more than 10 million consumers that generates annual revenues of approximately \$1 billion.

For such games, the quantity and the quality of the user network determine the degree of pleasure and satisfaction consumers gain from the gaming experience. However, limited research addresses this impact. Investments in MMOGs are substantial (e.g., *Star Wars: The Old Republic* had a budget of more than \$125 million; Schiesel 2011), and flops are common. Thus, it is critical to determine how user communities can be built, because no game launches with a preset user network. What effect do familiar brands, such as *Star Wars*, have in this context? Game producers might learn from movie studios that have accumulated expertise in the generation of pre-release buzz (Karniouchina 2011). But does a critical threshold exist in terms of network quantity?

For games that combine offline and online elements (as most modern-day console games, but also several smartphone games do), it would be interesting to understand the dynamics of the direct network effects. For example, how does a game’s offline capabilities relate to the development of its user network? How important is the participation of others whom a player knows personally? Research on brand community building and maintenance might offer insights (e.g., Schau, Muñiz, and Arnould 2009), in that building a viable social network is the core task of every brand community manager.

Business Models for Games

Traditional business models for games assign a fixed price and provide consumers with unlimited time to play. For online games, an alternative business model relies on a subscription service, such that players pay periodic (usually monthly) fees to participate (Roquilly 2011), as applies for most MMOGs (e.g., *World of Warcraft*). In a hybrid version, consumers buy a game and then pay a periodic fee to be able to play it online (e.g., *Star Wars: The Old Republic*).

Similar to other digital products and services, some games adopt a “freemium” pricing strategy too (Anderson 2010), particularly those played on smartphones and social networks. In this case, the games are available for free, but play is restricted to a certain time period or a certain range of in-game actions. By paying a fee, consumers can “unlock” parts of the game. A popular variation of this model generates revenues through in-app sales, such that customers purchase additional characters or equipment (“virtual goods” such as faster virtual cars, decoratives, or better virtual weapons) that boost their performance and enhance their gaming experience. In the popular smartphone game *Temple Run* for example, players can earn coins to unlock new features that increase their distance or shield duration, or they can purchase these features from the store. Revenues for such virtual goods have doubled since 2010

and reached \$14.8 billion in 2012 (Superdata 2012), accounting for about 22% of combined hardware and software revenues. However, a key challenge for freemium pricing strategies is the identification of the critical threshold at which the giveaways attract a large user base and generate direct network effects, but the cost-based elements still can produce revenues. Wu, Chen, and Cho (2013) identify different (direct) network effects and argue that giving away games for free maximizes revenues if the positive network effect of the game itself is high and the negative effect of the virtual goods (i.e., the value of a weapon is lower if many others also have bought it) is low.

In addition to revenues from customer sales, in-game advertising benefits game producers. Such revenues might be earned in addition to revenues from customers or support an alternative business model for games that are free to consumers (equivalent to free newspapers such as London's *Metro*). In-game advertising creates another kind of two-sided market, with advertisers and game customers as the actors and the game as the mediator (Herrewijn and Poels 2013). Classic in-game advertising is static and similar to product placement in television shows or movies, such as unchanging virtual billboards (e.g., *FIFA 13*) or in-game product placements (e.g., *Need for Speed*).

A more recent development is dynamic in-game advertising, which allows advertisers to tailor ads over the Internet to match geographical locations, time points, or players' in-game behaviors, such that they can undertake time-critical and cost-effective campaigns (ESA 2012a; Turner, Scheller-Wolf, and Tayur 2011). For example, in 2008 Barack Obama's campaign team purchased space for virtual billboard advertisements in *Madden NFL 09* and nine other games from *Electronic Arts* that appeared only in ten swing states (Alarkon 2008). Advertisers even can account for the players' out-game behaviors by using the motion-sensing *Kinect* for *Xbox 360* (Microsoft 2013). Although consumers likely judge dynamic advertising more appealing, empirical evidence is needed, and privacy concerns might counter such positive effects.

The effectiveness of in-game advertising may also differ with characteristics of the advertised brand, the game, and the players (Terlutter and Capella 2013). Acquisti and Spiekermann (2011) show that if an in-game advert is perceived as an interruption of the game, players' attitude toward the shown brand decreases. Jeong, Bohil, and Biocca (2011) find more in-game advertising in violent games than in non-violent games, presumably because players are more aroused in violent games, so advertisements might be more effective. Other potential moderators of in-game effectiveness include the location of brands in the game (e.g., proximity to the player's visual field, whether in the center of the game action or peripheral), game involvement, and players' prior game-playing experience. Lee and Faber (2007) show that all these factors influence brand memory. In an initial overview, Terlutter and Capella (2013) conclude that we still know little about potential moderators of in-game advertising.

A variation, called "advergaming" (Kretchmer 2004), means that the usually gratis games feature third-party brands as integral to the content. For example, the free game *The DinoHunters* partnered with the razor-company *Schick* to create

a storyline in which players must shoot a commercial for one of the company's razor brands. Kinard and Hartman (2013) suggest that advergaming is more effective for the promotion of new products than for products consumers are already familiar with. Steffen, Mau, and Schramm-Klein (2013) found that players who win an advergaming rate the embedded brands more positively, so that games should not be created too difficult. Finally, Waiguny, Nelson, and Marko (2013) conclude that violent advergaming may damage the attitudes toward the embedded brands through negative spill-over effects.

Consumers

Who Plays?

The growth of the game market has coincided with an enormous broadening of the relevant consumer groups. Early console generations appealed mostly to children and male teenagers; subsequent generations attracted also young men (*PlayStation*) and then also female consumers and families (*Wii*, but also the *Kinect* controller of the *Xbox 360*). The average age of console game consumers in the United States is 37 years, and 42% of players are women. Approximately three-quarters of American households spend money on games today (The Economist 2011). In addition to casual players, leagues of professional players have developed, allowing players to compete on a global level. Some competitions are broadcast live over the Internet or on television (e.g., *ESPN*). Professional players even hire out their services to train top-ranked players and teams (Cheung and Huang 2011). The rise of smartphone games is likely to change the demographic composition of players even further, in that they require no distinct platforms. The nearly ubiquitous nature of smartphones and relatively low prices for games make almost every consumer a potential gamer.

Why Do They Play?

Games are hedonic products, in the true sense of Hirschman and Holbrook's (1982) definition: Their usage entails emotional reactions, creates fantasy, and is multisensory (see also Voss, Spangenberg, and Grohmann 2003 who classify games as high hedonic, low utilitarian products). Researchers from multiple disciplines, including media psychology, communications, and computer science have investigated consumer motivations for playing games since the introduction of the first console generations (for overviews, see Boyle et al. 2012; Vorderer and Bryant 2006, pp 91–194). In his seminal article, Malone (1981) applied intrinsic motivation concepts to computer games and identifies three basic motivational categories: fantasy, challenge, and curiosity. Following studies added psychological constructs of arousal, competition, diversion, and social interaction (Poels et al. 2012; Sherry et al. 2006), habits and addictive tendencies (Hartmann, Jung, and Vorderer 2012), in-game autonomy and competence (Ryan, Rigby, and Przybylski 2006), and effectance and self-efficacy (Klimmt and Hartmann 2006) as motivating forces.

Researchers have also studied specific consumer groups (e.g., children, Ferguson and Olson 2012; females, Lucas and Sherry 2004) and kinds of games (e.g., mobile games, Okazaki

2008; sports games, Kim and Ross 2006), where particularly MMOGs have gained notable interest. With a survey of approximately 3,000 MMOG players, Yee's (2006) factor analysis lead to three broader motivational categories, namely achievement, social, and immersion (see also Debeauvais et al. 2012). Shin (2010), drawing from a survey of 298 MMOG players, finds that the enjoyment derived from playing the game drives their ongoing participation, and others stress the motivational role of challenge (Teng et al. 2012) and social interactions (Cole and Griffiths 2007) motivate online gaming participation.

Although these studies shed light on players' motivations, more knowledge integration is needed for developing a comprehensive understanding of consumers' participation in games. Such integration should account for differences and similarities across platforms and game types. Considering the rising importance of virtual goods, it would be helpful to investigate if within-game purchase decisions are triggered by motives similar to those that drive the choice to play the game at all. Park and Lee (2011) suggest that such decisions are influenced by character competency, enjoyment, visual authority, and monetary gains. How can these findings linked to the motivations reported above?

Malone's (1981) challenge motivation also relates closely to the broader psychological concept of flow, a mental state characterized by energized focus, full involvement, and intense attention to an activity (Csikszentmihályi 1997). Video games offer a prototypical context for flow (Sherry 2004), which has been shown to influence players' behavioral intentions (Jin 2011). Studying flow for different *Wii* games, she finds the drivers of flow to differ across game types; spatial presence is highly relevant for driving games, but the player's self-presence and focused attention are the main influences in role-playing games (Jin 2011). Flow is ambivalent; it has been held responsible for negative effects of gaming such as time distortion and difficulty breaking away from playing without interruptions by others (Rau, Peng, and Yang 2006) and game addiction (Chou and Ting 2003).

Several aspects of flow in gaming remain unexplored (see Hoffman and Novak 2009). Among them is the link to consumer immersion, a state of presence in a fictional world that is implied by flow (Green and Brock 2000; Takatalo, Nyman, and Laaksonen 2008) and that has been argued to be the most desired state by players (Huntemann 2000). When immersed in a game, consumers feel mentally transported into the virtual environment and identify with the avatars they control, essentially 'becoming' them (Huntemann 2000; Klimmt, Hefner, and Vorderer 2009). Coulson et al. (2012) show that consumers form emotional attachments to virtual avatars; Bélisle and Bodur (2010) note that avatars may reflect the personality of the consumers who created and control them.

We know that immersion drives media enjoyment (Green, Brack, and Kaufman 2004; Przybylski, Rigby, and Ryan 2010), but we need to understand *how* immersion relates to enjoyment: Is more better, or does a threshold exist, beyond which immersion becomes uncomfortable for consumers? Identifying such a threshold would have clear implications for game producers, as would determining whether immersion drives enjoyment for all games or just certain genres. Moreover, it is not clear what causes immersion (Qin, Rau, and Salvendy 2009). Considering

the overlap between flow and immersion, we need to determine which concept is more applicable for understanding game-playing behavior, and research and practice would also benefit from valid measures of flow and immersion in gaming contexts (see Jin 2011; Qin, Rau, and Salvendy 2009).

Communication and Distribution Strategies for Games

Communication and Branding

Traditional Media Communication

To hedge the high investments required for console titles, producers try to generate anticipation for a new game in advance of its release. Such buzz produces sales that are mainly influenced by producer information (i.e., prior to the release, consumers cannot share their quality evaluations through word of mouth), so that the success of the new game is less susceptible to its quality. To generate buzz, prerelease advertising has a critical role, and game producers devote a substantial portion of their advertising budget to the time prior to a new game's release. Fig. 6 lists the distribution of advertising budgets over time for console games released between 2005 and 2011; an average of 22.1% is spent prior to the release week, 17.8% during the release week, and 60.1% thereafter. This pattern is similar to, though less radical than, patterns in other entertainment industries (e.g., Elberse and Anand 2007).

Social Media Communication

The rise of social media also might have far-reaching implications. Social media in general and microblogging in particular seemingly could reduce the effectiveness of a buzz-release approach. Social media (e.g., through *Twitter*) enable consumers to share quality-related information immediately after or even during their consumption experience with a large, global group of followers and friends, which lessens the information asymmetry between producers and consumers that is an inherent element of the buzz-release approach (see Hennig-Thurau, Wiertz, and Feldhaus 2012 for movies).

But some games, such as *The Ville* by *Zynga*, have become integral to popular social networks, and several major game brands have entered into such social media environments. These games help consumers keep up with their friends online by playing together or communicating about the games. Although millions of consumers enjoy such offers, generating profits through social media games remains difficult, leading *Electronic Arts* to withdraw its games such as *The Sims Social* from *Facebook* in June 2013. Perhaps a more effective use of social networks is to build brand communities around a game title that allow consumers to engage with a game (and thereby enhance buzz), even when not playing it. Understanding the impacts of brand pages for game success is an interesting avenue for research.

Other games such as the racing game *Forza Horizon* integrate social media elements and let players connect directly through other social networks. For example, personal achievements (e.g., new personal lap time records) can be shared automatically with friends, which may help satisfy needs for self-expression.

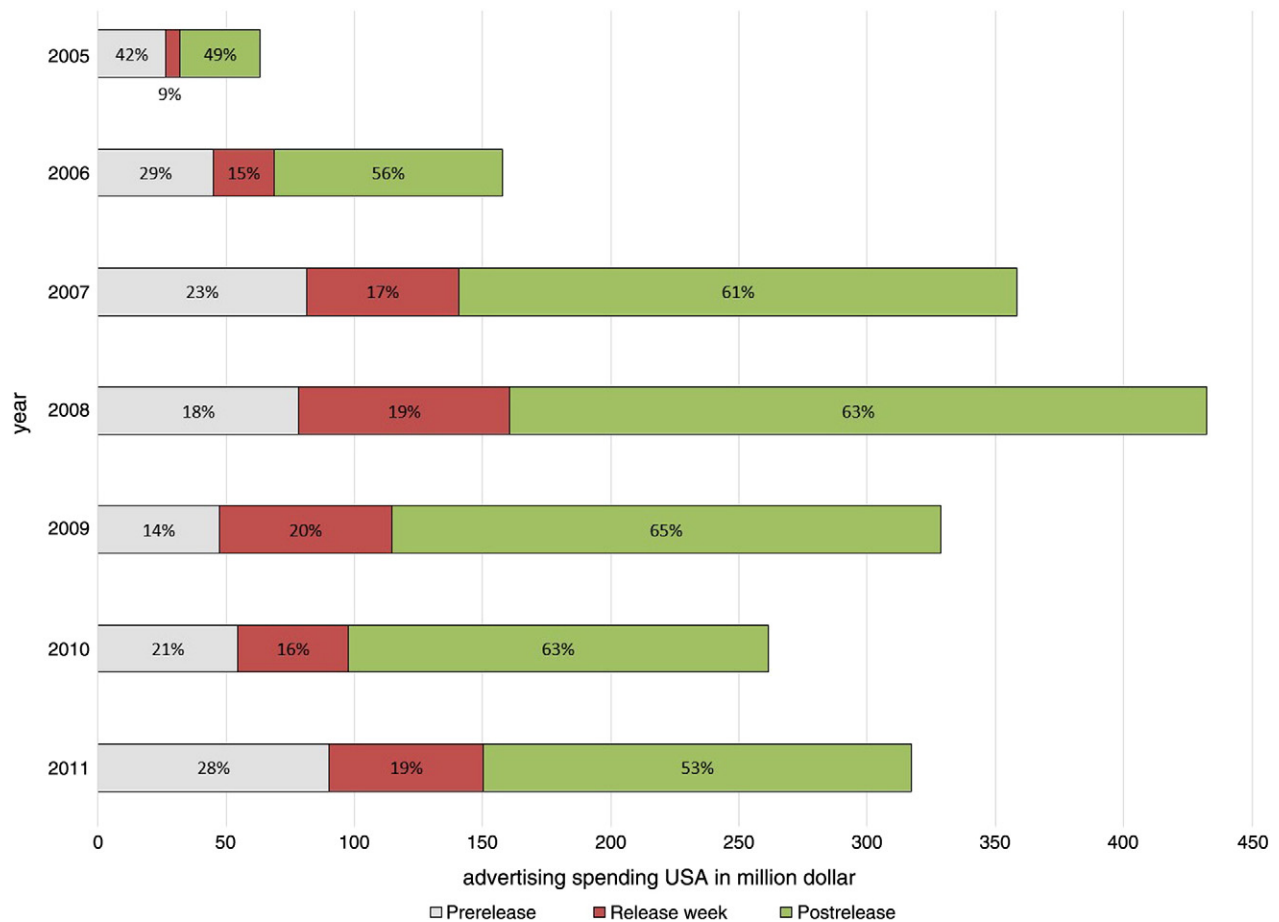


Fig. 6. Advertising spending for console games over time. Source: Kantar Media. Sample: All video games released in the U.S. between 2005 and 2011 for Microsoft Xbox 360 (838 titles), and between 2006 and 2011 for Sony PlayStation 3 (664 titles) and Nintendo Wii (1,062 titles).

Even more radically, games might serve themselves as social platforms for players. Consumers often feel the need to chat while playing games online, as traditionally satisfied by “second-screen” media (e.g., *Facebook Messenger* and *WhatsApp*). In response, several games enable chatting through the game itself, in which case those games become media of social exchanges that are not necessarily limited to game-related comments but also touch on other relevant issues (e.g., tomorrow’s homework). We lack sufficient knowledge about the influence of such behaviors on players’ enjoyment or the conditions in which consumers accept and adopt such integration.

Branding

Branding is an essential part of games’ communication strategies. Of the top 20 bestselling video games, no less than 18 (90%) were sequels in 2011 (ESA 2012b). Sequels serve as brand extensions in the movie industry (e.g., Basuroy and Chatterjee 2008; Dhar, Sun, and Weinberg 2012), and a contextual model exists for calculating the monetary value of sequel rights (Hennig-Thurau, Houston, and Heitjans 2009). Although movie and game sequels share some characteristics, other success factors differ and limit the potential transfer of these insights (e.g., movie star continuity influences the sequel value of films, but there is no equivalent concept for games). The prominence of sequels in the games industry suggests the

need for a better understanding of factors that influence the value of sequels, above and beyond that it matters for games (Cox forthcoming).

Distribution

Physical to Digital

Traditionally games were distributed on physical disks, in boxes including printed manuals. The industry is moving quickly to digital distribution though; from 2009 to 2011, the ratio of physically distributed games dropped from 80% to 69%, and digitally distributed games rose accordingly (ESA 2012b). This shift offers multiple likely advantages to game producers. In addition to increasing profit margins by eliminating retailers and production costs (e.g., for the disks and boxes), producers can attain more direct relationships with individual players. For example, by making its *PlayStation Network* central to game play, *Sony* collects data about customer usage patterns, which should enhance its value-enhancing, tailored offers. However, the use of such “big data” is far from trivial; companies such as *Sony* have relatively limited experience managing customer relationships, because their historical focus on brands has led them to treat customers as segments, not individuals. Exploiting the potential of digital distribution requires a successful transition from a brand orientation to a customer relationship focus.

Offering advice on this transition is a worthwhile and necessary task for marketing research.

Another driving force of the transfer from physical to digital distribution is the effort to minimize the resale market. The rise of digital retail markets, such as *eBay* and *Amazon Marketplace*, has turned players into (amateur) game retailers (Hennig-Thurau et al. 2010) and frustrated game producers. In cooperation with other entertainment producers, game companies have started to devote substantial effort to developing distribution strategies that can prevent consumers from reselling their games. The music industry has focused mainly on legal actions (e.g., suits against the reseller *ReDigi*; Rosenblatt 2013). The multiplayer feature is an important value element for many blockbuster titles, such as *Call of Duty*, so producers can tie the online features of the game and access to additional downloadable content to a nontransferable “online pass,” linked to the player’s individual account. Sole online distribution makes reselling restrictions even stronger. It is unclear, however, if eliminating resale options is a smart move; an inability to resell a game might reduce consumers’ value perceptions and thus their willingness to pay. Further research should investigate the consequences of resale options for consumers’ perceptions and firms’ success.

Finally, digital distribution through platforms might enable new pricing models, such as flat rates. Console games then might represent services that can be rented or played by paying weekly or monthly fees, as is already the case for MMOGs such as *World of Warcraft*. Are consumers willing to adopt such new distribution models for blockbuster games? Would a flat rate that allows customers to play all published games for a fixed periodic fee, similar to music subscription services like *Spotify*, be attractive to them?

Piracy

Piracy is a crucial issue for all entertainment industries. Ordinary computer games are highly vulnerable to piracy, because games can be spread through the Internet, and serial numbers can be generated or even bypassed with minor changes to the files. However, compared with music, film, and books, console games generally are less prone to piracy, because the consoles embody additional copyright protection techniques, easily implemented by manufacturers and difficult for hackers to break. The combination of physical and digital distribution also raises the costs of pirating games, complete with all their features.

Previous studies in other entertainment industries offer valuable insights about motivations for engaging in illegal file sharing (e.g., Hennig-Thurau, Henning, and Sattler 2007). Gaming consumers generally have greater technological affinities than moviegoers, and the technical challenges of cracking copyright protection systems might serve as a specific motivation. Finally, Digital Rights Management, a strategy frequently adopted by game producers, invokes negative consumer effects in music and movie contexts (Sinha, Machado, and Sellman 2010; Vernik, Purohit, and Desai 2011). However, in a closed, vertically integrated environment, such as console games, its negative effects might be less relevant for consumers. No

empirical research we know offers insights into this question yet.

Other Game-Related Aspects

Related Content

Games are interlinked with other industries and their content in multiple ways. Such industry links can add value to the producer of games through the concept of brand extension. Specifically, successful and innovative games have been adapted for other entertainment media, such as books and movies. In May 2013, the Internet Movie Database lists a total of 33 movies that are video game adaptations and feature an average budget of \$48 million, and 12 more that are in development or production. Extension potential sometimes even exists outside the media industries; *Angry Birds* earned substantial revenues not only with the digital games themselves but also with licensing and merchandising the game brand to toys. In 2011, 30% of the \$106 million income attributed to this brand resulted from such extensions; the brand became one of the five best-selling licenses at *Toys “R” Us* (Ante 2012). *Chrysler* has used the *Call of Duty* game brand for a special edition of its car, the *Jeep Wrangler Call of Duty*, and designed its interiors accordingly.

In addition, game producers have adapted existing entertainment brands such as movies, television series, novels, comics, or toys to generate awareness and interest. For musical games such as *Guitar Hero*, the catalogs of music publishers are the games’ backbones. Such cooperation can be highly lucrative for brand owners; the owners of the *Beatles* repertoire have earned \$10 million worth of royalties through the game *The Beatles: Rock Band* (The Economist 2011). There have also been creative combinations of both approaches. For example, the producers of the smartphone game *Temple Run* have applied a cobranding strategy by combining a brand extension strategy with adver gaming — in the game sequel *Temple Run: Brave*, the protagonists of the original *Temple Run* game were replaced with the protagonist of *Walt Disney/Pixar’s* animated feature film *Brave*.

Here, an interesting question relates to the best release order for different product categories. Should industries start with novels, continue with movies, and end with games? For what products is which order adequate? Maybe readers and movie audiences would lose interest if they have played the narrative already. As buzz plays a strong role for marketing new products today, which order is best-suited to maximize pre-release buzz for a brand?

Innovations and findings from the game industry may be relevant to how value is generated in other industries. Can (e-) novels adapt interactive storytelling, a computing technology that enables consumer to influence a storyline during consumption (Klimmt et al. 2012)? More generally, gamification describes the process of using game-oriented thinking and mechanics to engage customers in non-game contexts (Zichermann and Cunningham 2011). By adding achievement badges, leaderboards, or challenges, companies might better entertain and

motivate consumers to support them. Which situations allow firms to benefit from gamification, and how much, or in which circumstances might it hurt customer relationships?

Supporting Technologies

The abundance of available games in combination with their experience character means that consumers rarely know which game will provide them with the best value. Recommender systems can generate personalized predictions about product appeal by filtering the past behavior of, and preference statements from, consumers (Bodapati 2008). In comparison with other hedonic products, game consumption is particularly complex, yet intelligent algorithms can access an enormous amount of consumption data, particularly when consumers play online. Existing research into recommender systems has focused on movie and music data (Ricci et al. 2011), so that analyzing data about game content and consumers would be an exciting task for further research. Recommenders might also help players to find new gaming partners. Should a system recommend new friends who play the same games at the same level, or is it more valuable to offer a mix of recommendations, including people who play different games on dissimilar levels, to broaden the player's horizon? Researchers might be interested to learn how the consumption experience of multiplayer games differs when players play with friends they knew in advance or partners whom the player has never met.

Another important gaming advance stems from cloud technology (Michaud 2012), which enables consumers to play games that require massive amounts of computing power directly on dedicated servers through a web browser (e.g., *Agawi* and *OnLive*). A mediocre Internet device (e.g., a rather old computer) thus may be sufficient to play a game of high technical sophistication which has the potential to radically alter existing network principles pertaining to hardware upgrades. The software industry hopes to cut down on piracy as cloud games are not downloadable. However, it is still unclear whether and in which conditions such systems can become established in the market (e.g., as pay-per-use service), especially considering the requirements for the diffusion of very high-speed Internet to support cloud gaming.

Society

The diffusion of games and its association with violent outbreaks by journalists and politicians has spurred research on the societal impact of games in various disciplines. Findings are, as games themselves, complex and multifaceted. Regarding games' "dark sides," a heated debate circles around how violence in games influences those who play, as violent games such as the *Call of Duty* franchise are among the most successful ones (see also Cox forthcoming). Anderson (2003) notes that though some studies yield non-significant correlations, methodologically stronger studies indicate significant effects, including physiological arousal, aggressive behavior, and decreased prosocial behavior. In an extensive meta-analysis, Anderson et al. (2010) provide evidence for the robustness of findings that relate violent

games to aggressive behavior, cognition, and affect, as well as reduced empathy and prosocial behavior. These effects appear to be only marginally moderated by cultural differences in susceptibility or the types of measures used. More recently, long-term studies concur and indicate that violent video games lead to aggression (Krahé, Busching, and Möller 2012) and hostile expectations (Hasan et al. 2013).

Still, other scholars question these effects. Ferguson (2013) argues that researchers use invalid measures of aggression, ignore important control variables, and rely on small effect sizes. He cites studies that indicate playing violent video games does not influence aggressive behavior in general, because personality characteristics are stable. Colwell and Kato (2003) find a negative correlation of preference for aggressive games and aggression scores, whereas Unsworth, Devilly, and Ward (2007) discover no effect for most experiment participants, increasing aggression among some, and decreasing levels of aggression among other participants, an effect that is consistent with catharsis theory that argues that violent media consumption can reduce aggressive behavior in real life (e.g., Feshbach and Singer 1971). It should be noted that regardless of who is 'right' in this debate, no evidence at all exists that links video game consumption with societal violence. This important research area has clear potential for expansion and clarification; we believe that better understanding the demand for violent games might offer some clues.

Beyond aggression, other negative consequences of playing games have also been reported. Playing video games has been shown to lead to excessive multitasking behavior (Brasel and Gips 2011), cause attention problems (Gentile et al. 2012), and addiction (Kuss, Louws, and Wiers 2012). The resulting attention deficit problems and impulsiveness (Gentile et al. 2012) might lead to reckless driving (Hull, Draghici, and Sargent 2012), interference with socializing in the real world (Smyth 2007), or delinquent behaviors such as theft (Fischer et al. 2012).

But the picture is not one-dimensional. Scholars have also highlighted a number of beneficiary influences of games on consumers' capabilities and behaviors. Some report that even violent games increase visuospatial cognition and social involvement (Ferguson 2010) and reduce depression (Ferguson and Rueda 2010). Other findings refer to non-violent games. Greitemeyer and Osswald (2010) report that games such as *Lemmings* and *City Crisis* that focus on cooperation and helping others increase players' prosocial behavior, as reflected in picking up pencils for others, assisting in studies, and helping a harassed woman. Moreover, studies show that playing (non-violent) action games can improve, among others, cognitive functions (e.g., spatial cognition, Spence and Feng 2010; and processing speed without losing accuracy, Dye, Green, and Bavelier 2009) and vision (e.g., contrast sensitivity, Li et al. 2009; and visual evoked potentials, Mishra et al. 2011). Bavelier et al. (2012) conclude that action games stimulate one underlying general cause, namely consumers' learning ability (learning to learn). It seems obvious that a richer understanding of the context factors that influence consumer reactions would be important.

In addition to the impact on the individual consumer, research has also studied usage options of games. Games and particularly

MMOGs have been found to be effective “virtual laboratories” where they can be used to teach players social and leadership skills (Barnett and Coulson 2010; Lee and Peng 2006). Such games have been successfully applied to identify innovative ways to deal with real-world problems; for example, the *Institute for the Future* (iff.com) simulates a world without oil, observing how players develop new habits and techniques to cope with this challenge. Some scholars have been using the term “serious games” for such applications (for an overview, see Connolly et al. 2012).

Summary

Video games have become a mass phenomenon, accompanied by a growing number of exciting questions and possible strategies for managers. Through the diffusion of technological innovations (e.g., smartphones), new players are entering the market and increasing the competitive intensity. Established companies need to continue professionalizing their business models, including their marketing processes and strategies, quickly and flexibly. In this paper, we offer a conceptual framework that enabled us to review the state of the art in games-related research, covering work from multiple disciplines, and to identify challenges and research opportunities in this industry. We argue that the high level of creativity and innovativeness that is inherent to this field will continue to breed an ever-expanding range of game types, formats, and business models—and thus topics for further research.

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