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CATCHWORD

Esport

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1 Introduction

Esport—or competitive video gaming—is on the rise as events attract millions of viewers. For example, the League of Legends World Cup Finals in 2018 attracted more than 200 million viewers (Esports Charts 2021). In contrast, the American Super Bowl 2019 attracted 104 million viewers on US TV (Nielsen 2018) with an estimated 30–50 million international viewers (Constantine 2019). The European esport industry alone was estimated to be worth EUR 3.9 billion in 2018 (Ludwig et al. 2020). The worldwide revenue from advertisements in esport was close to USD one billion in 2019, according to recent estimates (McKinsey 2020). Esport is no longer a niche market, but has a broader audience, as 67% of Danish and 72% of Chinese consumers are already familiar with esport (YouGov 2020).

There is a vivid debate about esport in the literature. Proponents highlight esport as a means to self-actualization and satisfaction through a desire to win as well as a preference for difficult tasks, and for its entertainment and value creation (Marchand and Hennig-Thurau 2013). Yet, there are also adversaries. For example, the German Olympic Sports Confederation, which defines the strategic orientation for Germany's umbrella sports organization, does not acknowledge esport as a regular sport because of limited physical activities (German Olympic Sports Confederation 2018). Also, concerns due to intellectual property claims—as video games are owned by the developing organization (Holden and Baker 2019)—and concerns due to possible addiction (Zastrow 2017)—coining the term internet gaming disorder as a psychiatric disorder (Przybylski et al. 2017)—have been raised.

This controversial debate about the positive and negative aspects of esport often results from unilateral investigations. Information systems (IS) scholars are well equipped to contribute to the discussion on esport as an important contemporary socio-technical phenomenon. Esport revolves around digital technology that often mediates and shapes social interactions. Prior IS research on esport illustrates this: digital probes in eRaces facilitate generativity (Jarvenpaa and Standaert 2018), non-verbal in-game team communication using pings influences team performance (Leavitt et al. 2016), and good gamers have desirable managerial skills (Simons et al. 2020). Also, first business schools have realized esport's potential. For example, the GAMA lab is a game research and analytics lab, initiated by IS scholars, with a focus on esport research (Berente and Dobolyi 2021). As such, esport as a digital-native industry provides new research opportunities for IS scholars that combine artifact-centric research with, for instance, social, psychological, and economic research.

This article synthesizes existing literature on esport across different fields focusing particularly on IS. The article is structured as follows. Next, Chapter 2 develops an esport definition by reviewing and synthesizing prior definitions. An overview of the esport ecosystem is presented in Chapter 3. Chapter 4 reviews and synthesizes the state-of-the-art of esport research, before Chapter 5 concludes

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the article by developing and proposing an esport research agenda for IS scholars.

2 Esport Definition

The origins of esport date back over 2 decades. For example, ESL as one of the largest esport organizations was founded in 2000, when its founders already had experimented with prior esport ventures. In the beginning, esport sprung from the LAN-Party (local area network) community, that is, groups of video game enthusiasts that met on weekends to play with and against each other in times when Internet access was limited and often too slow. Only more recently has esport gained the attention of academic researchers, including legal research (Holden and Baker 2019), sports management (Cunningham et al. 2018; Hallmann and Giel 2018), media management, (Scholz 2020) business research (Parshakov et al. 2020), and information systems (Hamari and Sjöblom 2017; Jarvenpaa and Standaert 2018; Weiss and Schiele 2013; Westmattelmann et al. 2020).

Different definitions of esport exist, for it is being discussed and defined not only by academic scholars, but also market analysts, and esport associations. While practitioners and academics set varying foci in their esport definitions (see Table 1 for an overview), it is often associated with competitive video gaming (YouGov 2020). Competitions are often organized in leagues and tournaments (Ludwig et al. 2020), facilitating both, individual and team competition (Parshakov et al. 2020). To prepare for these competitions, players take part in highly structured training activities (Crawford and Gosling 2009), for example, in bootcamps or regular training matches—referred to as scrims. Digital technology mediates both, competition and training activities. For example, players may use a computer, a console (ESBD 2018), or any other form of electronic system (Parshakov et al. 2020), such as digital platforms (ESBD 2020) and head-mounted devices for augmented or virtual realities (Altimira et al. 2016). More recently, also traditional athletes compete online through the mediation of digital technology (Westmattelmann et al. 2020). While some definitions highlight the professional and semi-professional level (PwC 2020), esport also comprises a vivid ecosystem of amateur players, as in the example of ESL's open leagues. Hence, this article defines esport as competitive or organized "technologically enabled activities encompassing varying degrees of physicality, virtuality and technological immersion" (Cranmer et al. 2021, p. 2).

The definition also allows us to distinguish esport from related terms, such as video gaming. Video gaming describes the playing of video games for varying purposes, for example, for fantasy fulfillment and symbolic exploration, for proving oneself, for social engagement, to exercise mentally or physically, and to seek acknowledgment (Crawford 1984). Esport differs from video gaming, because it requires competition and, hence, an ecosystem of actors. Video gaming may involve other players, but many video games do not, for example, the video game Cyberpunk 2077. For those cases where a multiplayer is available, players engage in video gaming for different purposes than athletes.

3 Esport Ecosystem

Current research on esport is rather diverse and affects the entire esport ecosystem (Ludwig et al. 2020). Figure 1 summarizes the ecosystem. In the following, the esport ecosystem is discussed with a focus on three actors that operate and use the esport platform: esport providers, viewers, and professional teams and players.

First, esport providers operate an esport platform and organize esport events. The platform helps the esport provider to manage central services, such as leagues and tournaments. While esport providers organize leagues often online, tournaments can be online, offline, or a combination of both. Esport providers, such as ESL and Eleague, are central actors in the ecosystem and specialize in esport. To offer leagues and tournaments, they require a license from the video game publishers, as publishers own the video games' intellectual property. Given the pivotal role of esport, its ability to prolong the lifetime of a video game, and its potential to increase sales, selective publishers also act as esport providers. For example, Riot Games—the publisher of League of Legends—organizes the world championship series, a top-tier competition. Esport providers also acquire additional resources through sponsorship deals. For example, endemic sponsors, such as Intel, and non-endemic sponsors like DHL and Mercedes-Benz signed sponsorship deals with ESL.[1]

Second, professional players and teams compete in different online leagues and tournaments. Depending on the game, they might compete player vs player, or require a team of professional players to compete. In either case, professional players are signed by esport organizations. For example, TSM and Cloud9 are currently the two most valued esport organizations that contract competitive players (Settimi 2020). These organizations are privately owned. Their owners, for example, decide in which games to invest by contracting players to form a new competitive team. More recently, also traditional sports clubs have

[1] https://www.mercedes-benz.com/en/sports/mercedes-benz-expands-partnership-with-esl/.

Table 1 Overview of esport definitions and their sources by domain

Domain	Definition	Source
Esport associations	The competitive playing of video or computer games, especially on computers and consoles, according to defined rules	ESBD (2018)
	The direct competition between human players using appropriate video and computer games on various devices and digital platforms under defined rules	ESBD (2020)
Market analysts	Forming an ecosystem consisting of individual leagues, events, and championships that generate revenue	Pannekeet (2018)
	Video game competitions	YouGov (2020)
	The playing of computer and video games on a competitive level with teams or individuals facing each other within leagues or in tournaments	Ludwig et al. (2020)
	Competitive and organized playing of computer and console video games at a professional and semi-professional level	PwC (2020)
Academic researchers	A form of sports where the primary aspects of the sport are facilitated by electronic systems; the input of players and teams as well as the output of the esports system are mediated by human–computer interfaces	Hamari and Sjöblom (2017)
	Entails professional video game matches where players compete against other players before an audience	Holden et al. (2017)
	Implies individual or team competition facilitated by electronic systems	Parshakov et al. (2020)
	Involves competitive, organized, or technologically enabled activities encompassing varying degrees of physicality, virtuality, and technological immersion	Cranmer et al. (2021)

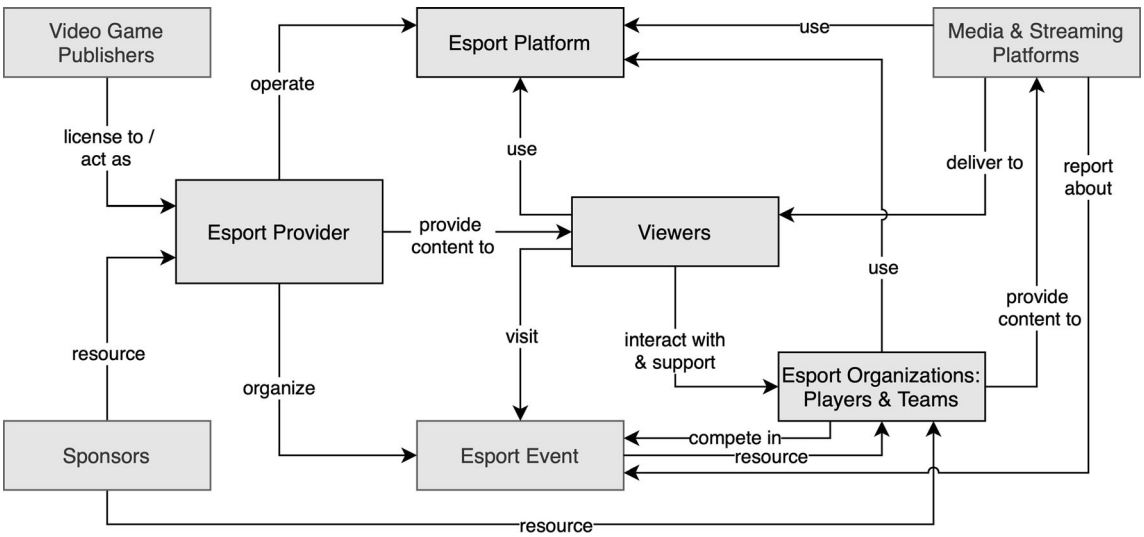

Fig. 1 Overview of the esport ecosystem and stakeholders

invested in esport. For example, the German soccer team Schalke 04 has formed their own esport team.[2] Also, USA's national basketball team started recruiting esport players.[3] These esport organizations acquire resources in two ways: i) through sponsorship deals and ii) through price money by having their players compete in leagues and tournaments.

Another important stakeholder in the esport ecosystem is the esport viewers that consume and engage in esport (Hamari and Sjöblom 2017). For example, viewers use the esport platform to access league statistics and tournament results. They also visit esport events, generating revenue for the esport providers through ticket and merchandise sales. Esport events create a shared experience among viewers as they often last an entire weekend with 10–12 h of competitive gaming to watch. Given the length of these events, the esport community uses online media and

[2] https://schalke04.de/esports/en/.

[3] https://www.usab.com/esports/esports-open/news.aspx.

streaming platforms, including Twitch and YouTube gaming, to distribute content. Using streaming platforms, individual streamers can have over 600 thousand viewers on stream at a time (Donnelly 2018). Streams can be offered by the league or event organizers, but also professional players are more frequently streaming when training. Regardless of the content providers, the streaming services allow viewers to interact with the content provider through digital technology. For example, viewers can engage through chat, voting, payment, donation, and other functionalities.

4 Current State of Esport Research

Prior esport research focused on (i) the governance and growth of the ecosystem (e.g., Scholz 2020), (ii) esport viewers and their consumption (e.g., Hamari and Sjöblom 2017), and iii) the technology-mediating platform (e.g., Jarvenpaa and Standaert 2018).

Scholars investigated the governance and growth of the esport ecosystem, suggesting that the power resides mainly in the video game publishers, there are many stakeholders in the esport industry, and more stakeholders are emerging (Peng et al. 2020). In consequence, the industry shifted from a lead-organization-governed network toward a network administration organization model. Mega events contributed to this industry shift because of spillover effects. For example, a study suggested a positive effect of event marketing in the video game and esport industry, whereas 80 esport tournament events per year and more lead to a spillover effect that affected game popularity and sales (Parshakov et al. 2020). Another aspect of this growing industry was the employment relationships. A review on the employment relationships in the esport industry suggested that comparisons to existing sports leagues such as the NFL, NHL, and NBA erroneously trivialized and underestimated the complexity of esport (Holden and Baker 2019). It is this complexity that challenged the employment relationship and prevented unionization.

Scholars also investigated esport consumption by viewers. When consuming esport, acquiring knowledge about the games being played, escapism, novelty, and esport athlete aggressiveness were important factors that predict esport spectating frequency (Hamari and Sjöblom 2017). Vicarious achievement, that is, an emotional attachment of the viewer with the achievement of the esport player or team, increased the intention to watch live events, future online esport consumption, and viewer's recommendation of esport (Sjöblom et al. 2019). More so, esport viewing increased game consumption (Macey et al. 2020).

IS scholars also investigated the role of platform's use in technology-mediated competition for entire virtual environments (Weiss and Schiele 2013) and sports digitalization, that is, the traditional sports competitions facilitated through digital technology (Westmattelmann et al. 2020). Professional athletes, for example, associated both, positive and negative perceptions with the digitalization of sports. Financial and time efforts for athletes, broadcasting opportunities, and cooperation with sponsors were positively perceived, whereas the possible manipulation of data and different valuation of tactical knowledge in sports digitalization had been perceived negatively (Westmattelmann et al. 2020).

When esport operates in entirely digital environments, literally any data point can be captured (Werder et al. 2020), whether the data point is an event triggered in the game, such as the win of one team over the other, or the route traveled by one player in the game. These so-called digital probes "configure rich, heterogeneous social and technological resources to create artifacts and events that generate new views that unravel and challenge prevailing practices, identities, and values" (Jarvenpaa and Standaert 2018, p. 983). Thus, digital probes enabled generativity to reveal previously hidden connections, reconfigure practices, and cross-appropriate technological and social resources (Jarvenpaa and Standaert 2018).

5 Future Directions for Esport Research

The uniqueness of esport as a digitally enabled phenomenon coincides with the interest of the IS community. Thus, IS scholars play a central role in understanding and explaining this recent phenomenon. Prior research on esport gives rise to plenty of new opportunities at the intersection of different disciplines, such as information systems, marketing, management, psychology, and others. More research is needed to theorize about esports either by contextualizing existing theories or by developing new theories. Following the prior discussion of the state-of-the-art, the article presents future research directions along with ecosystem governance and growth, esport consumption and interaction, and platform design (see Table 2).

Esport ecosystem governance: Establishing governance mechanisms is important to maintain the ecosystem. Given the unique characteristics of esport, new challenges arise. One challenge is ensuring fair competition. The ecosystem needs to identify and implement governance and control mechanisms that safeguard it. Also, the ownership and design of video games by the publishers provide a challenge. Some games have a pay-to-win design, meaning that important virtual goods require a purchase with real money, giving the players an in-game advantage. As the

Table 2 Overview of future research directions

Research direction	Example research question
Esport ecosystem governance	How can esport providers assure fair competition?
	How to manage intellectual property concerns within the esport ecosystem?
	How to manage pay-to-win designs in esport titles?
Esport ecosystem growth	What are the factors that drive the growth of the esport ecosystem?
	What are the business models of different actors within the esport ecosystem?
	How do consumer devices (e.g., mobile, consoles, PC), connectivity, and platforms influence the growth of esport?
	What is the role of augmented reality and virtual reality in esport and how will these emergent technologies shape novel forms of esport?
	How can esport become an Olympic sport?
Esport consumption	What are motivational and social factors that influence the adoption and use of esport media and esport platforms?
	To what extend is esport subject to gambling and addiction, and how can viable concerns be addressed?
	What are the different consumption patterns of esport viewers on different channels, devices, and regions?
	What in-game and background information is relevant and informative to esport viewers?
	What are the negative implications of esport for individuals and society?
Esport interaction	How can technical integration of digital advertisements boost esport performance (e.g., through engagement and sponsorship revenue), and what is their effect?
	How can new interactive technologies and elements (e.g., augmented reality and haptic feedback) within streams promote esport viewership and engagement?
	How does sports participation influence viewership and engagement in esport?
Platform design	How to design the esport platform to assure fair competition (e.g., security and reliability requirements)?
	What information needs do different stakeholders have and how can the platform provide such information?
	How can stakeholders benefit from novel data analytics in esport?

video game is owned by the publishers, the ecosystem can be vulnerable to changes in strategy by the publishers (Ceccagnoli et al. 2012).

Esport ecosystem growth: The growth of the esport ecosystem as a nascent industry provides also further research opportunities. Scholars can investigate factors that help the ecosystem thrive and grow. Particularly in the early phases of ecosystem growth, multiple challenges arise to develop a network of stakeholders. In the case of the esport ecosystem, these stakeholders have various business models that require more investigation (Parshakov et al. 2020; Peng et al. 2020). Despite esport stakeholders' differences, the esport ecosystem has maintained considerable growth.

The role of different technologies remains ambiguous. We need more research to better understand how consumer devices and their evolution, increased connectivity, and the evolution of the platform contribute to the ecosystem's growth. Looking forward, emergent technology, such as augmented and virtual reality (Berkemeier et al. 2019; Wohlgenannt et al. 2020), can play an important role in esport's evolution. We need more research to understand their implications for esport and how they can shape novel forms of esport. These technological advances also play a role in understanding how esport could become an Olympic sport.

Esport consumption: An important stakeholder of the esport ecosystem is its viewers. We need more research to better understand the consumption of esport and the interaction of viewers with different stakeholders. Esport gives rise to new questions related to esport consumption (Hamari and Sjöblom 2017; Westmattelmann et al. 2020). For example, we need to better understand the motivational and social factors that influence esport consumption. This could help to comprehend why viewers are willing to pay and undertake substantial travel to watch tournaments live with tens of thousands of other fans, while they could watch them for free at home.

At the same time, the number of viewers for online streams continues to rise and we need to discern individuals' consumption patterns. For example, viewers have different means of supporting their streamers (Toast 2018). They can watch advertisements, subscribe to their favorite streamers' channels, or donate real and virtual money. However, these consumption patterns may also lead to negative implications. For example, with its increasing popularity also concerns arise related to esport gambling and addiction. The gambling industry is increasingly expanding into the realm of esport (Holden et al. 2017). We

need more research discerning these consumption patterns, particularly when they have negative implications.

Given the fact that esport revolves around digital platforms, data are no longer scarce, but a unique resource that can enrich streaming content. For example, the competition in some video games, take DOTA 2 for instance, is difficult to understand. Yet, explaining the basics too often on stream is likely to force esport enthusiasts to quit the stream. Data analytics already play an important role in video game development (Werder et al. 2020) and may help strike the balance needed to attract and attain viewership. So far, the implications of novel forms of interactivity in broadcasting and the value of data analytics in broadcasting remain largely unexplored in the literature.

Esport interaction: Through the digital foundation of the esport ecosystem, new opportunities for interactive value creation arise (Marchand and Hennig-Thurau 2013). For example, digital advertisements can boost engagement and sponsorship revenue. Yet, their implementation may require onboarding video game publishers when making in-game changes, for example, by showing a sponsor's logo within the game. These technical integrations require more research to better understand their effects.

Also, emergent technologies, such as augmented reality and haptic feedback (Speicher et al. 2019), can lead to innovative prototypes (Zobel et al. 2019) that showcase their potential for increasing viewership and viewers' engagement. Through these manifold means of digital interaction, sports participation—that is, the "purposeful active participation in sports-related physical activities performed during leisure-time" (Deelen et al. 2018)—presents another opportunity to boost engagement.

Platform design: Esport builds on digital technology and benefits from digital platforms. The malleability of digital platforms provides more research opportunities for IS scholars about the design of these platforms. For example, online competition can be subject to data manipulations. Given the digital nature of esport, technological developments, such as hacks and cheats, evolve quickly and have already given rise to a market of their own (Franceschi-Bicchierai 2021). Researchers need to understand the design implications for these platforms to assure the security and reliability of the platform.

Different stakeholders within the esport ecosystem also have different information needs. We need more research to understand these information needs and how these may shape a platform's design. For example, data analytics are becoming increasingly important within esport, and different stakeholders have different needs. While esport organizations may need analytics to decide whether to invest in a new team, players and teams require analytics to optimize their game strategy and in-game tactics.

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