ANALYSIS OF THE ECOSYSTEM OF E-SPORT

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Abstract

Our daily lives are characterized by constant development, which offers new opportunities for us in several fields of life. As a result of technological development and digitalisation, a new industry (e-sport) has emerged and is growing rapidly. The popularity of e-sport is skyrocketing, but there are still several questions around this issue. Despite or due to the rapid growth, operators, operations, drivers, and contexts of this part of the entertainment industry are still an area that is unknown and needs to be explored. The aim of my research is to explore the current operation of e-sport, understand its characteristics to get a clear picture and provide an overview of the operators in the industry, the correlation between them, and the flow of money and value. To achieve my research goal, I conducted an analysis of the e-sport ecosystem. In the course of secondary data collection, I studied and processed existing domestic and international ecosystem analyses in literature, which I consider to be the most useful and valid for the purpose of the research. There are significant differences between existing ecosystem analyses; some are oversimplified while some are more complex for representation, but as far as I am concerned, none were completely complex. Models presented in this article do not, in my view, provide the most accurate picture of e-sport per se, but provide a comprehensive picture of the industry by integrating the positive aspects and systems of these analyses.

Key words: *e-sport, ecosystem, stakeholders*
JEL classification: *O39*
LCC: *H1-99*

Introduction

Our world is defined by constant development and change, as a result of which more and more opportunities are provided allowing new areas to unfold. Regarding the invention of the steam engine, electricity, or the car, all of them were milestones in human history that have significantly transformed our daily lives and had profound impact on our future. These examples demonstrate the intermittent nature of the development adequately that was already predicted in the 1920s by the Soviet-Russian economist N. D. Kondratyev, who wrote about the coexistence of major technical changes every fifty to sixty years with economic waves of the same period. Based on Kondratyev's theory, five long waves can be identified (Mellár, 2015). The most significant factor in the last cycle identified was the computer-information technology technologies launched in the 1970s, which are known to have led to significant developments. The emergence and boom of computer science resulted not only in the emergence of new products and a radical transformation of the information and administration systems of the economy (Mellár, 2015), but also had a significant impact on the entertainment industry, leading to the emergence of a new industry. This new industry is called electronic

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sport (e-sport), which is the fastest growing field currently and which would not have been possible without the advent of information technology and digitalisation. The growth tendency of the area is not limited to these days, the industry has been developing rapidly for a few years now, gaining ground and popularity year by year. Playing computer games is the most popular among the younger teens and those in their twenties which is not yet considered e-sport in itself, but it forms the basis of the entire industry. Beyond the hobby level, the number of those competing in video games is growing, and practically it is the ground of the definition of e-sport, pursuing e-sport at professional-level.

Electronic sport is one of the fastest growing forms in digital entertainment and it is booming, particularly due to technological advances such as the increased prevalence of online games (Hamari - Sjöblom, 2017), the availability of technology and the organization of competitions (Jenny et al., 2017). Despite or due to the growth tendency, operators, operations, drivers, and contexts of this field of the entertainment industry are still unknown. Furthermore, there are several questions about e-sport, which provide research goals and research areas for those researchers / professionals who are interested in e-sport. The main objective of my research was to study the 'functioning' of e-sport to get and provide a comprehensive picture of operators and contexts of the industry. Consequently, to determine the most objective picture possible, I will analyse the ecosystem of e-sport in this article.

E-sport

Although e-sport have started to develop spectacularly in the last few years, its history dates back to earlier, with the first such competition held at Stanford University in 1972. At that time, technological background did not allow e-sport to start significant development, which changed after the turn of the millennium, when the rate of growth became exponential (Láng, 2017). Based on my research so far, I found that literature has been focusing on the topic since 2010, a significant amount of literature has been available since then. It can be concluded that there are several definitions in literature, a significant part of which are the same.

The essence of e-sport can be accurately outlined by several definitions. Wagner (2006) considers e-sport as an area of sport activities where people can develop and practice physical and / or mental abilities with information and communication technology. Wagner highlighted a controversial issue in his definition, which has been a concern for researchers ever since, and so far, no exact agreement has been reached regarding physical activity. Shortly after Wagner's theory, a significant aspect can be found in Jin's (2010) definition, which has been accepted to make e-sport as accurate as possible since then. By definition, e-sport can be interpreted through online games and related activities, which mean the form of competitions and tournaments between players. Like Jin (2010), Witkowski (2012) bases his remarks on competitiveness, who concludes that e-sport is an organized and competitive approach to computer games (Witkowski, 2012). For researchers, e-sport is implemented within a competitive framework. A PwC study from 2018 states that video gaming at home, at hobby level, is not considered as e-sport (PwC, 2018). E-sport, as a term, can be related to virtually any video game that allows competition between players based on measurable results (Kőhidi, 2018). Szabella (2018) describes e-sport as follows: e-sport is an individual or social sport that requires controlled physical action on an electronic device where the individual or team competes with each other. As it is clear from this definition, Szabella (2018) defines e-sport as a sport in addition to the physical activity discussed earlier, which is also the base of debate these days. E-sport refers to organized video game competitions that serve as a non-traditional model of sport and became a commercial entertainment business, generating hundreds of millions of dollars in revenue, especially over the past five years (Gawrysiak, 2016; Jenny et al., 2017). If we have a closer

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insight on the revenue growth discussed by Gawrysiak (2016) and Jenny et al. (2017), development that is characteristic of this industry can be well quantified:

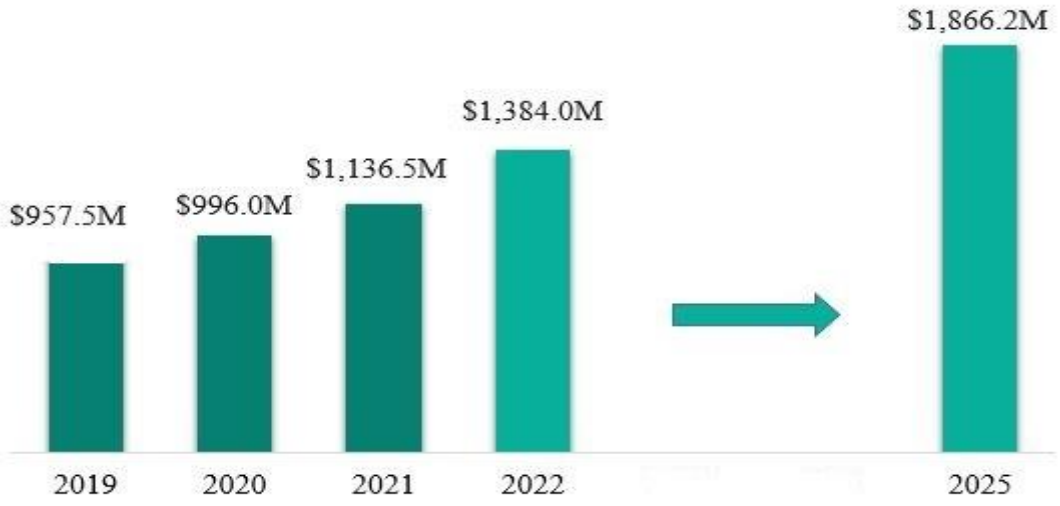

Figure 1: Revenue growth in e-sport

Source: Newzoo (2021), Newzoo (2022)

According to a statement in Newzoo (2022) report (Figure 1), revenue is expected to rise sharply by 2025, which means it will exceed $ 1.8 billion Newzoo (2022). Revenues include sponsorship, media rights, publisher fees, merchandise and tickets, digital and streaming revenues Newzoo (2022). It can be concluded that the spread of e-sport is illustrated by two data, one is the increase in revenue discussed above and the other is the increase in views:

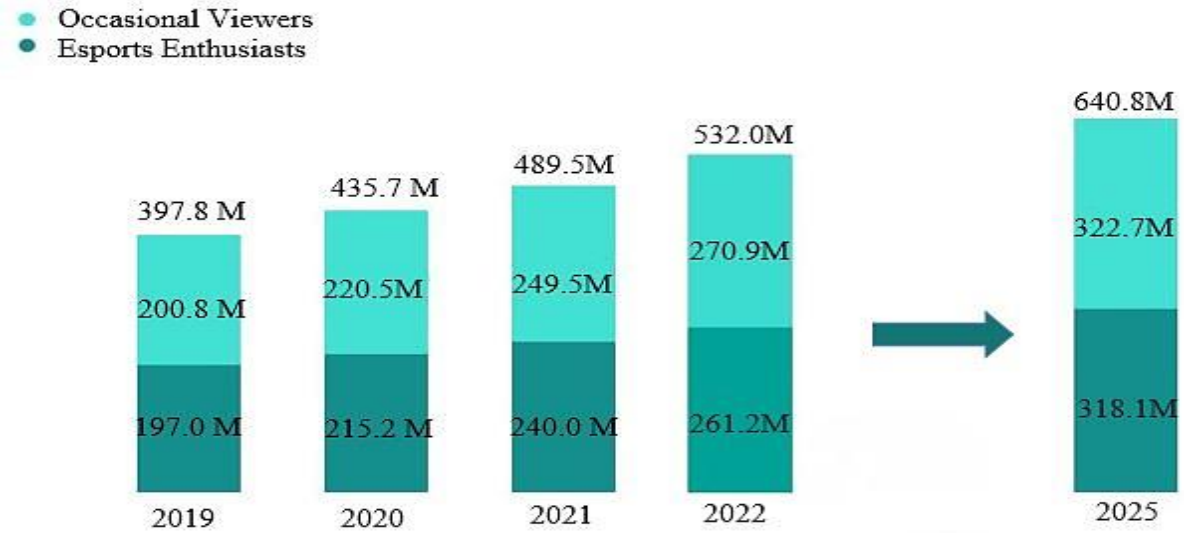

Figure 2: Increase in e-sport competition audience

Source: Newzoo (2021), Newzoo (2022)

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According to a Newzoo report (Figure 2), in 2022, the global e-sport community will grow by 8.7%, which means it will reach 532 million. The group of e-sport fans will include 261,2 million people, and casual audience will be up to 270,9 million. The global e-sport community was 489,5 million in 2021.Views are expected to rise to 640,8 million by 2025 Newzoo (2022).

Ecosystem

The ecosystem, or system of organizations, refers to a complex phenomenon in each scientific interpretations. The term first appeared in natural sciences, including biology and ecology. In the context of economic theory, the term was first used in the late 1980s (Horváth, 2021). An ecosystem is a functional unit that includes players that are highly interdependent and whose are interconnected (Jalonen, 2019). An ecosystem refers to a set of operators with relationships and processes between them that determine value creation (Fransman, 2014).

Material and method

The main goal of my research is to map the operation of the e-sport industry, to get to know its characteristics, which includes the processes / relationships between the operators, as well as the process of money and value flow. To achieve this goal, I used the analysis of the ecosystem in the industry as a research method. In the course of secondary data collection, I studied and process existing domestic and international ecosystem analyses in literature, which I consider to be the most useful for the purpose of the research. During data collection, I searched the databases of ScienceDirect, Scopus, Researchgate, in addition I delved into Google Scholar and Esportsresearch websites and used the Internet. I conducted the research based on the keywords *'e-sport'*, *'esport'*, *'esports'*, *'esports ecosystem'*, *'ecosystem of esports'* and *'e-sport ecosystem'*. Models presented and analysed in my article have been selected on the basis of two aspects, on one hand the content of the models provides a clear / concise picture of the sector in part or in full, and on the other hand the models contain elements, links and relationships that are necessary for the functioning of the area, and these elements are not always included in ecosystem representations based on my experience.

Results

Stakeholders in e-sport

In my secondary research, I first surveyed stakeholders in e-sport ecosystem. I will start with Śliwa – Krzos (2020), The Model of eSports Ecosystems, which focused on collecting e-sport stakeholders. This study is based on the approach of Tobias Scholz from 2019, who summarized e-sport industry from a strategic management perspective. The author used the stakeholder path approach to identify and characterize stakeholders in the e-sports sector, dividing them into two groups as suggested by Darnall et al. (2010):

- primary stakeholders directly involved in the value chain: game developers, tournament organizers, professional players and teams, infrastructure and service providers, community,
- secondary stakeholders who have an indirect influence on primary stakeholders: governing bodies, sports organizations, sponsors, the general public, investors, entrepreneurs, the media, and shareholders (Scholz, 2019).

The authors performed an analysis of the social media content of selected e-sport related organizations. Records were being analysed for 2 years for all references and mentions of other

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entities and description of the relationship between them. Entries included links to external sources (other websites, social media, images, and videos) that were regularly reviewed for additional insight into the events and players being studied. The research covered a total of more than 500 comments and 100 additional items. Based the analysis of data obtained during the research, it was concluded that they could verify Scholz's (2019) model, as the authors were able to identify all the roles he identified, but suggested extending the model as shown in Figure 3 below:

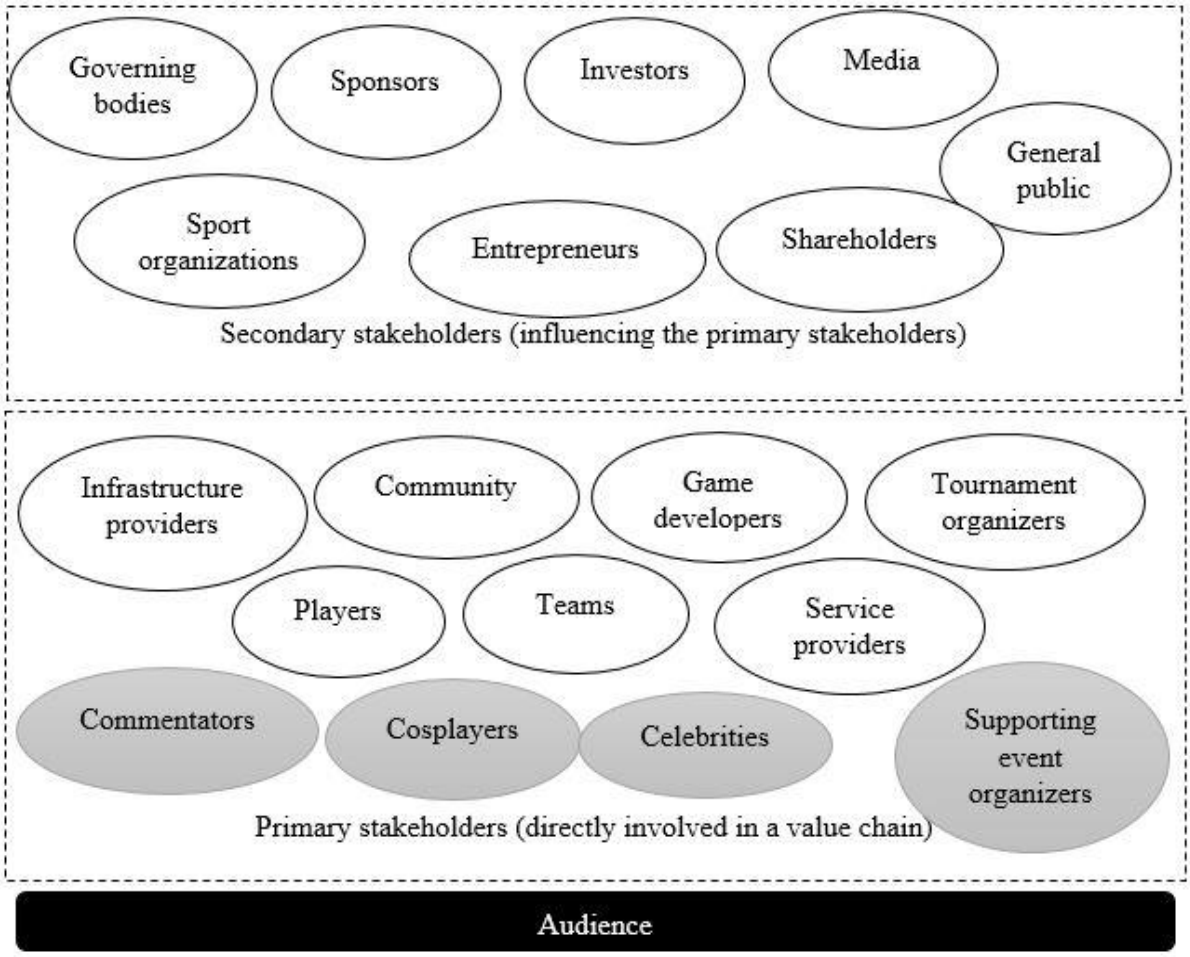

Figure 3: Stakeholders in e-sport

Source: Śliwa – Krzos (2020)

Based on their research, the authors propose an extension of e-sport stakeholders beyond what was identified by Scholz (2019), which are commentators, celebrities, supporting event organizers, and cosplayers. Of the four categories proposed, cosplayers may certainly be unfamiliar to many who are also considered to be special stakeholders in e-sport. Winge (2006) describes cosplayers as role-playing people who hide in the costumes of characters, comics, cartoons, anime, and other fictional universes during events.

The ecosystem of e-sport

The interdisciplinary nature of e-sport requires a holistic approach that integrates not only the video game industry, but also other industries involved, their players (existing or co-developed with e-sports) and the relationships between them. The methodology used for this type of

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approach consists of two phases: an initial phase in the form of a bibliographic review or literature search of scientific and professional sources approaching the e-sport industry, and a later phase, derived from the results obtained in the first phase, in the form of a proposed general ecosystem that allows the structure and functioning of the industry to be recognized (Vera - Terrón, 2019).

Vera and Terrón (2019) in their study took a more flexible approach to ecosystem analysis due to the specific nature of the digital environment and e-sport and opted for a networked approach based on the central role of 'users' (Figure 4).

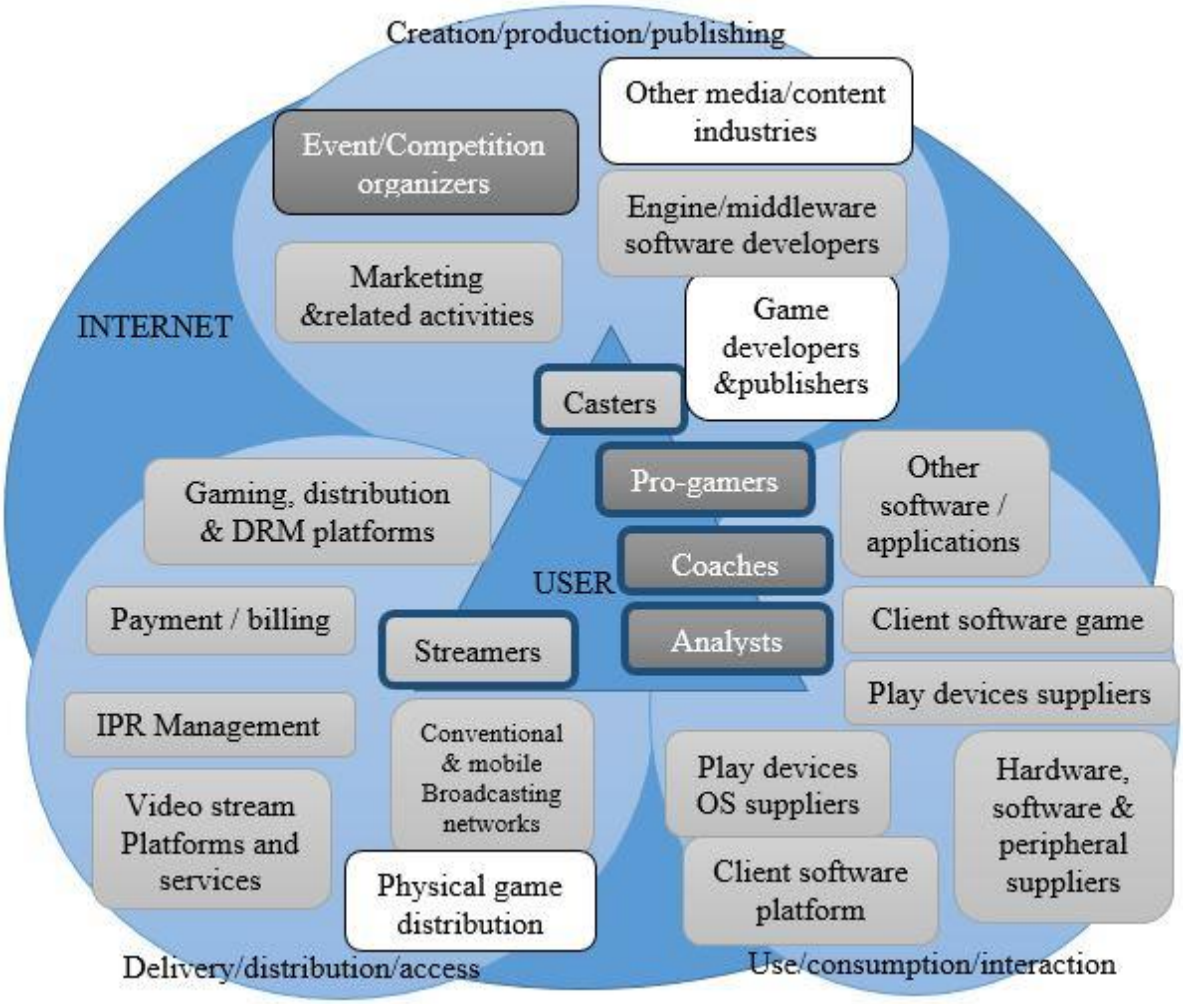

Figure 4: Ecosystem of e-sport players and key activities

Source: Vera - Terrón (2019)

The ecosystem they compiled was divided into three levels, where activities and operators were indicated in different colours. Activities or operators that are independent of the e-sport industry are indicated in white box; the elements necessarily related to e-sport are marked in light grey and the dark grey boxes contain the activities or players that developed as a result of e-sport. Furthermore, players in the boxes with blue frame are directly related to the user as the core of the industry. The so-called **'users'** in the ecosystem are professional players, coaches, and analysts. Analysts are permanent members of the professional team and can even participate in broadcasts due to their professional knowledge. Their work is closely related to and complementary to the work of trainers. The central players of the system are streamers and

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casters / intermediaries. The first of the three categories defined by authors is **creation / production / publishing** category, which includes game developers and publishers, as well as the media as an ecosystem-independent ecosystem player. The organizers of the events / competitions are also an integral part of the ecosystem, which is included in a dark grey box, which shows that they have become components of the system due to the continuous development of the sector. Elements necessarily related to e-sports in this category included software developers as well as marketing and related activities.

The second category is **delivery / distribution / access**: the physical distribution of games is independent of the industry. Other participants in the category are elements necessarily related to e-sport, such as competition platforms, traditional and mobile networks, intellectual property rights and payment / invoicing.

Finally, the presence of players in the third category **(use / consumption / interaction)** is necessarily related to e-sport. It includes providers of devices, hardware, software, and operating systems, in addition to gaming, streaming, and recording clients, that make it easier for users to interact with e-sport-related content. Also included in this section are other ancillary applications, software, and peripherals required to play, view, record, or broadcast competitive video games to produce content (Jenkins 1992; Ritzer - Jurgenson 2010). They conclude that two existing industries have two core impacts on the structure of e-sport ecosystem; the video game industry and professional sports. In my opinion, one of the most complex and best illustrative analyses of the e-sport market in Hungary and the Visegrád Group Countries was performed by PwC, one of the leading business consulting companies in the country, in which the relationships between participants are much better defined compared to the model from 2019 by Vera and Terrón (Figure 5).

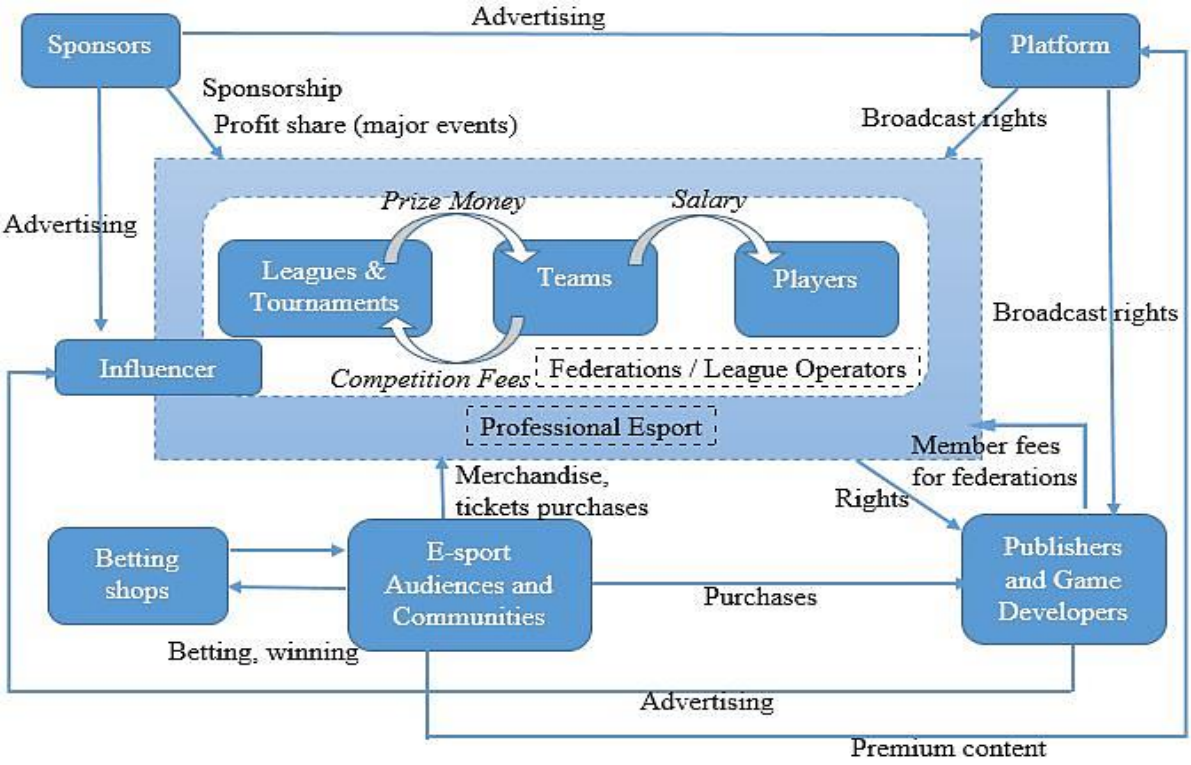

Figure 5: The ecosystem of e-sport

Source: PwC (2018)

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Each player in e-sport has their own sources of revenue. The engine of the ecosystem included e-athletes, teams, competitions of teams and audience. Of course, the games are developed by publishers, they sell the right to organize the competition, therefore their role is crucial for the whole ecosystem. Through the transmission of content / competitions / events (competitions, streams, analysis, etc.), access to the e-sport audience is provided by so-called platforms such as Twitch.tv or YouTube. Other operators, such as sponsors, influencers, and betting offices, facilitate the growth of the e-sport market, which will ultimately benefit all the players (PwC, 2018).

Compared to analyses presented so far, in addition to relationship between stakeholders, Newzoo's 2021 Global Esports & Live Streaming Market Report illustrates e-sport ecosystem based on money and value flows. Players, influencers, teams, fans / spectators, event organizers, publishers, sponsors, and platforms are involved in this representation. Based on Figure 6, it can be concluded that there is revenue from several sources for both teams and professional e-sport players. In case of players, in addition to receiving salary or a reward for prizes / winnings, they also receive a sponsorship allowance from sponsors / investors, a share of the revenue from the broadcasts and their income from the game publishers. Revenue from broadcasts includes a portion of subscription, support, and advertising revenue.

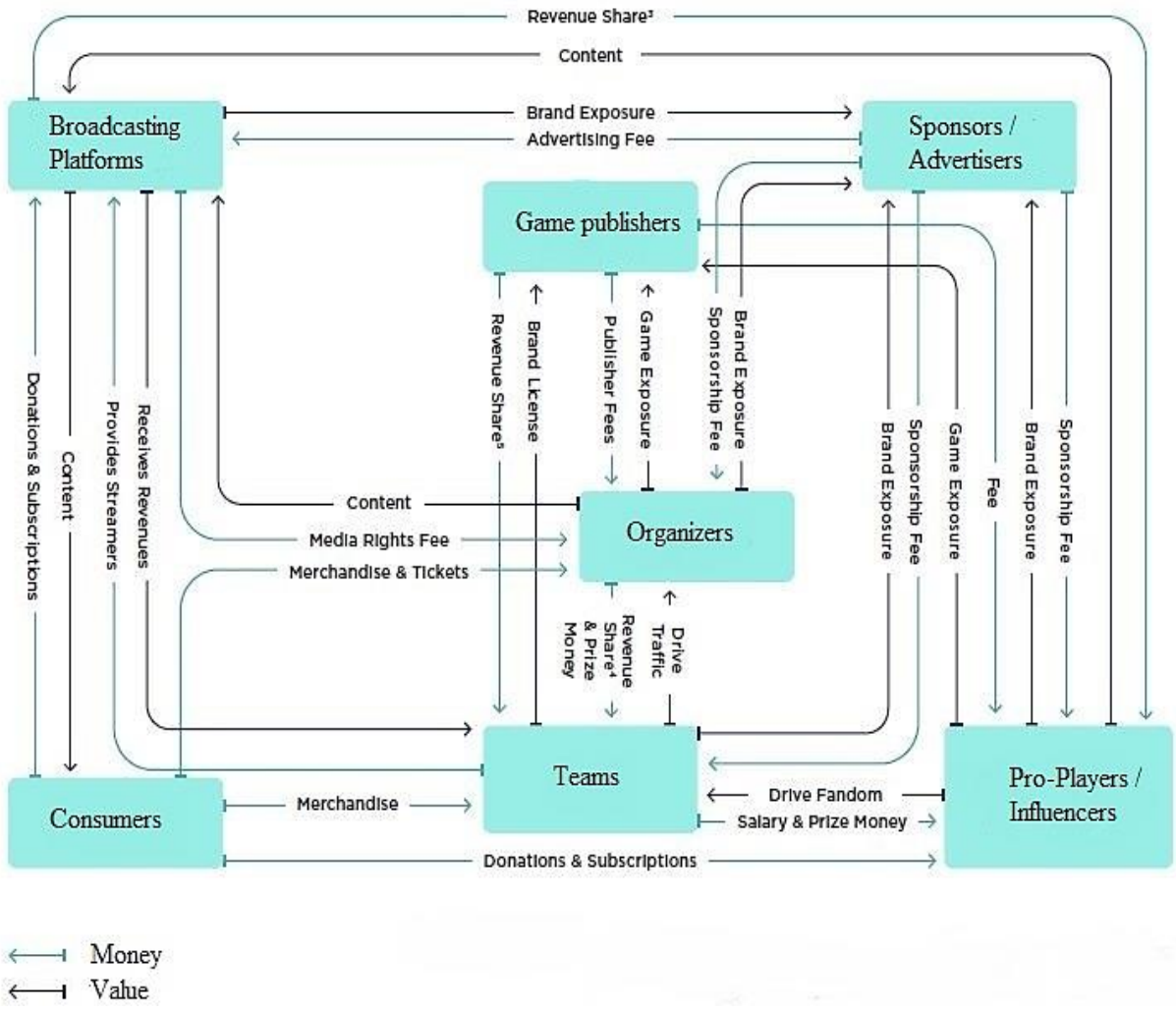

Figure 6: The ecosystem of e-sport – money and value flow among operators

Source: Newzoo (2021)

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Sponsors supports teams in the same way as athletes, and teams receive revenue from game publishers, organizers, and broadcasts, as well as cash prizes for specific placements. Revenue from organizers includes sponsorship and media rights. Fans and the audience can buy various products with the team's coat of arms (e.g., jersey, t-shirt, bag, calendar, hat, flag, scarf, mug, etc.) thus supporting teams. In addition to players and teams, sponsors provide support for tournament / event organizers as well as various platforms that allow those interested to follow matches online. Sponsors receive advertising and distribution of their brand in return for their support. Game publishers may own more than one game and be organizers of competitions related to the games they operate. In addition to sponsorship and, where applicable, publishing revenues, organizers derive a significant amount of money from media rights and the purchase of tickets by fans / viewers, part of which can be used to reward the winners.

According to the following figure, the e-sport ecosystem is characterized by e-athletes and teams and their coaches, game developers and publishers, e-sport competition organizers and league organizations, national and international e-sport associations, media and live broadcasting platforms, betting companies, gaming computer and equipment manufacturers, sponsors, and advertisers, and, of course, fans and followers of e-sport (Jalonen, 2019).

Figure 7: Multilevel e-sport ecosystem

Source: Jalonen (2019)

Jalonen (2019) compiled the e-sport ecosystem based on a different system than before and defined different levels, with a focus on professional or leisure-like competitive play, to which it also adds player preparation (Figure 7). Game developers and publishers, tournaments and leagues, and fans and followers are closest to the centre of the ecosystem. The next, i.e., at the third level, is the ecosystem operator that has so far been left out of both the stakeholder

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compilation and the ecosystem representations, which includes national and international e-sport associations that are essential to the functioning of the sector. The organizational background creates the regulation of an industry, allows its development, sanctions if necessary and guarantees the uncertainty of the outcome of e-sport events, which is a prerequisite for e-sports betting agencies.

Conclusions

As Nicolas Besombes, an associate professor at the University of Paris, phrased it, "*there are several systems for analysing the e-sport ecosystem and these try to provide the most objective and valid picture. However, these have never been fully satisfying because, unfortunately, these systems are either too simplistic, incomplete or do not clearly represent the interactions between different stakeholders* (Besombes, 2019)." I experienced his statement in several analyses focusing on e-sport ecosystem. There are significant differences between ecosystem analyses, some are simplified, some are more complex to represent, and there are differences in the modelling system, but studying multiple ecosystems provides an opportunity to capture the strengths of each model to get a complex picture of e-sports operation.

I chose the models presented because they provided the clearest possible picture of how the industry works. The compilation of e-sport stakeholders by Śliwa – Krzos (2020) provides a fairly detailed picture of stakeholders, identifying not only primary but also secondary stakeholders. The relationships / correlations between the operators are presented in a complex way in the PwC 2018 study. It is clear that e-athletes and the teams made up of them are central operators in the ecosystem who belong to associations, but athletes / teams would not be able to function without other important operators. Such indispensable operators in the industry are game developers and publishers, who provide video games around which e-sport competitions and tournaments can be organized. Publishers / developers play not only an important role in the creation of video games, but also have the right to organize competitions / tournaments, which they either run themselves or outsource to a third party. One of the features of e-sport is that the competitions / events are followed not only by a huge crowd on the spot but are also broadcast on various internet platforms. The two main sources of revenue for e-sport are sponsors and, of course, spectators, who thus play a prominent role in the system. Fans / spectators can not only enjoy the tournaments by following them in person or online, but they can also place bets on matches and have the opportunity to place e-sport bets at more and more betting agencies. The network approach model compiled by Vera – Terrón (2019) around the central role of users highlighted several factors / operators that are not included in other models studied in this article. These include marketing and related tools / activities, as well as providers of tools (peripherals), hardware, software, and operating systems for e-sport who provide the technical conditions for the industry. In addition, this ecosystem representation attributes a central role to coaches and, in addition, to the analyst, who are the facilitators of the work of the coaches and who play a significant role in the preparation of the teams / players. To understand the system of e-sport, in addition to the identification of the stakeholders and the relationship between them, the flow of money and value within the system is essential, which the Newzoo study presented shows with sufficient thoroughness.

Finally, the lack of a significant operator can be found in the models I analysed and, moreover, in case of the analyses I learned so far, the current analysis of the ecosystem does not include national or international associations. Multilevel e-sport ecosystem compiled by Jalonen (2019) is an exception, in which he included national and international e-sport associations. There is no doubt that we are certainly reaching the weakest point in e-sport, as organizational shortcomings largely determine the progress of the industry. To put it into perspective, the

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acceptance of e-sport as a sport is also a matter of concern, and the International Olympic Committee sees it as an insufficiency. It is not my aim to determine whether or not e-sport is a sport, but it is already being addressed by others. If we compare e-sport with the football ecosystem, for example, it is clearly FIFA (International Football Association) that exercises global governance of the sport. Thus, national, and international associations should play a central role in the best possible representation of the e-sport ecosystem, which is particularly important for the development of unified regulation. The reason why it is not found in e-sport is mainly due to the fact that the competitions / tournaments are organized by the game publishers who created the game with which the competition takes place and are not controlled by the associations, therefore the regulation of the competitions is not unified either.

Overall, e-sport is indeed evolving tremendously, in terms of both views and revenue, but there are a lot of unresolved issues. I compiled my article with the aim of conducting a survey of the operation of the sector itself therefore I analysed the ecosystem of e-sport. Models processed do not, in my view, provide the most accurate picture per se, but provide a comprehensive picture of the industry by integrating the positive aspects and systems of these analysis.

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