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The classification of esports events: definitions, sizes and composite index development

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ABSTRACT

Purpose/Rationale: This study aims to advance understanding of the size of esports events. Specifically, it seeks to address an academic gap by devising a methodology to measure the size of esports events.

Design/Methodology/Approach: The research develops a classification system for esports events. This system draws upon size characteristics from literature on sports mega events, adapting Müller's (2015, What makes an event a mega-event? Definitions and sizes. *Leisure Studies*, *34*(6), 627–642. https://doi.org/10.1080/02614367.2014.993333) taxonomy and Flyvbjerg (2014, What you should know about megaprojects and why: An overview. *Project Management Journal*, *45*(2), 6–19. https://doi.org/10.1002/pmj.21409)'s sublimes (political, technological, and aesthetic) to esports events.

Findings: A composite index is developed and applied to 53 esports events. This index factors in online and in-person attendance, prize money enabling a ranking of events by size.

Practical implications: The classification system offers managers and organisers within the esports sector an essential communication tool, enhancing the strategic planning, marketing, and delivery of events.

Research contribution: This research advances comprehension of esports events by providing a framework for classification and measurement. It represents a significant contribution to the academic discourse surrounding event management and esports.

Originality/Value: Introducing a classification system tailored for esports, based on adapted concepts from the literature on sports events, this research sheds new light on how esports events can be categorised and assessed.

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Introduction

Esports and esports events are inherently linked. At the pinnacle of all major esports events are tournaments such as the PGL (Professional Gamers League) Majors in CS:GO (CounterStrike: Global Offensive), or Rocket League's RLCS (Rocket League Championship Series), which attract elite players globally. Esports events are seeing rapid and sustained growth in popularity and interest worldwide (Zhu et al., 2024). Despite this phenomenon, academic research has not yet widely explored esports events. However, gaining an understanding of the size, scope and evolution of these events

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through a classification system would yield valuable insights and contribute to knowledge.

Arguably, such classification is deemed useful to map and better understand the importance of esports events, echoing its usefulness for traditional sporting events. Müller (2015, p. 627) presents a classification of mega-events (including sports mega-events, SMEs), suggesting that "having a common understanding makes it easier to talk about the same subject when talking about mega-events", outlining a system that classifies events according to relevant, widely accepted factors to determine events size. Therefore, a classification system of esports events is deemed useful, as it contributes to building a common understanding and providing a basis for further academic and operational progress in this area. Further justification for classification and organisation of academic research of esports comes from Cranmer et al. (2021, p. 116), who explain that "definitions and classifications of esports remain elusive", elaborating that esports come from diverse and conflicting fields, which has damaged interpretations of its "definition, positioning and core components". Although this relates to esports in general context rather than specifically to esports events, the classification of esports events contributes to the broader discourse regarding the definitions and classifications of esports and related events. This helps provide more meaningful interpretations of their positioning and characteristics.

The present research aims to address the gap by answering the following question: how to measure the size of esports events?

This study explores the possibility of developing a classification system specific to esports events. To achieve this, we draw upon relevant size characteristics previously identified in the literature on events, with a particular focus on sports mega events (SMEs) as a comparative term for esports events. Müller's (2015) taxonomy for SME and Flyvbjerg (2014)'s "sublimes" are reviewed and adapted to the context of esports. The point is drawn by Flyvbjerg (2014, p. 9) that four "sublimes" (technological, political, economic and aesthetic) need to be considered, which are outlined as "the drivers of the scale and frequency of the projects discussed".

The classification of esports events based on their size is significant for various reasons. For example, organisers and managers can use it as a communication tool. Furthermore, it facilitates the identification of growth opportunities for specific events. Additionally, in a landscape where recent technological advancements and adaptations due to COVID-19 restrictions have reshaped the sports environment, there may be a compelling case for updating Müller's (2015) taxonomy and Flyvbjerg (2014)'s sublimes to accommodate the dynamics of esports events.

Literature review

Esports literature

A growing interest on esports is evident in the academic literature. For example, studies discussed the definition of esports (Jenny et al., 2016) and whether esports should be considered a sport (Hallmann & Giel, 2018). Also, previous literature focused on exploring the motives of consumers (Lee & Schoenstedt, 2011) and how spectating esports interacts with consuming esports (Macey et al., 2022). Other areas of research were interested in defining who the esports stakeholders are (Scholz, 2020) and understanding how esports is governed (Peng et al., 2020).

Reitman et al. (2020) published a literature review on esports, shedding light on its evolution from a non-existent field of study to a topic spanning across seven distinct academic disciplines that include business and sports science. From a business perspective, the authors argue that there are four key reasons for the growth of video games: "the value of the experience economy for consumers, the popularity of video games, the social recognition of video game players and advances in

technology" (Reitman et al., 2020, p. 35). Furthermore, Reitman et al. (2020, p. 35) discuss that identifying these factors has helped with "exploring motivations for esports consumption, understanding the networks and organizations surrounding the players, and designing effective marketing techniques". This aspect has been explored more extensively by Qian et al. (2022), who developed a scale for studying motivations around spectatorship in esports and identified various factors for watching esports online. Findings were developed by acknowledging the aforementioned work of Hamari and Sjöblom (2017), with two new motivations identified, namely "skill improvement and vicarious sensation" (Qian et al., 2022, p. 471).

From a sports science perspective, Reitman et al. (2020) show that most research is concerned with setting agendas relating to traditional sports and evaluating the potential for esports to be considered sports, namely "how the immersion and interactivity of computer games can emulate and require skilled physicality" (Reitman et al., 2020, p. 35). It could be argued that this is oversimplifying esports by limiting its definition, curtailing the research area and narrowing it solely within the overarching traditional sports background. Hallmann and Giel (2018) examined the debate about the definition of esports and whether it should be classified as a sport. The authors indicate that when esports were embraced as part of the 2022 Asian Games, this was a significant milestone, but that further clarity is needed around whether esports can be categorised as sports. Examples of the consequences of this debate are outlined, including potential subsidies in Germany and economic benefits including tax exemptions. The size of the industry is also illustrated, with large, sold-out spectator events and large prize pools raised as examples of why the esports industry is now important. Five criteria are outlined as considerations that should be undertaken when considering "whether esports go beyond a sole recreational activity" (Hallmann & Giel, 2018, p. 15): physical activity, recreation, competitive elements, organisational structures and social acceptance. The conclusion is that, due to lacking a physical element, esports cannot be defined as a sport. However, one may argue that it is not less physical than other more traditional sports such as darts or chess, both of which are recognised sports with numerous bodies. Scelles et al. (2021) also contribute to the debate in their attempt to assess whether the peculiar economics of professional team sports apply to esports. They find a mix of similarities and differences and conclude about the possibility that esports are a specific form of sports.

The authors of the present paper believe that to pigeonhole esports as either sport or not sport is to limit what in reality it is, which is its own entity and idea. Therefore, in the current manuscript, esports are defined as "elite level competitive video gaming, often in the form of professional events (league competitions, tournaments, championships or battle/match) and typically between contracted gamers or sponsored teams" (University of Melbourne, 2025). Based on this definition of esports, esports events can be defined as a usual form of esports which correspond to professional league competitions, tournaments, championships or battle/match, typically between contracted gamers or sponsored teams.

Esports events have been researched in recent literature. The focuses have been on analysing why people watch esports and esports events (Hamari & Sjöblom, 2017), how host venues for esports events are created or adapted (Jenny et al., 2016), how esports events have grown and increased in professionalism over time (Scholz, 2019), the relationship between esports gameplay and media consumption (Jang & Byon, 2020), how sponsors engage with the audience (Rogers et al., 2020), the link between betting and spectatorship (Abarbanel et al., 2020), behavioural

intention (Jang & Byon, 2020), and motivations for live attendance (Pu et al., 2022). However, the literature on esports events has not covered yet their classification, hence the existence of an important gap in knowledge as identified in the introduction.

Theoretical basis of the research: (sports) mega-events and classification literature

While SMEs have been considered widely in the literature, minimal research has been undertaken regarding esports events, and even less has been undertaken regarding classification of esports events. The current study builds upon the existing body of research developed on SMEs by applying these ideas to esports events. Müller (2015) and Flyvbjerg (2014)'s works are extensively used in this study to adapt established frameworks from traditional sports and mega-events to the context of esports, recognising the growing significance and distinct nature of esports events. First, Müller's (2015) taxonomy for SMEs provides a foundational classification system that is repurposed to measure esports events' size. Second, Flyvbjerg's (2014) concept of "sublimes" is also adapted to assess the multifaceted impact of esports events. These adaptations are crucial for developing a comprehensive classification system tailored to esports, acknowledging their unique characteristics while leveraging the theoretical and methodological rigour from the study of traditional sports and mega-events. This approach not only facilitates a structured analysis of esports events but also enhances the understanding of their scope, scale, and evolution, providing valuable insights for stakeholders in the burgeoning field of esports.

Müller's taxonomy of SMEs

The term SME embraces a plethora of event types and sports. Müller (2015, p. 627) delineates the research on (sports) mega-events, with the intention to create a platform for future research by presenting "a definition and classification scheme for mega-events". Müller (2015)'s work is unique as there is a paucity of research specifically considering classification of (sports) events. His classification builds on existing definitions of SMEs to outline four "constitutive dimensions": visitor attractiveness, mediated reach, cost and transformation. In addition, the classification system developed by Müller distinguishes between three levels of events: major, mega and giga events. Müller (2015) included the caveat that to be classified as major, an event must feature a large ("L") size in one of the constitutive dimensions. For example, an event must feature two "L" dimensions in order to be considered "mega" and three "L" dimensions in order to be giga.[1]

The most influential component of Müller's work is the development of a ranking structure based on the four dimensions outlined. These dimensions are derived from pre-existing definitions, with nine papers and their respective definitions being presented as justification for the four individual elements. Visitor attractiveness is included due to the study of mega-events being "firmly rooted in tourism and leisure studies" (Müller, 2015, p. 628), with a minimum of one million ticket sales required for an event to qualify as a mega-event according to Müller (2015) based on his analysis of previous literature and comparison between nine different events. However, Müller (2015) notes that many events would miss this notional target. Mediated reach is considered using the valuation of broadcast rights as a contrast to attractiveness and its focus on in-person attendance, capturing those who watch the event in front of a screen as opposed to in-person. Nevertheless, one of the limitations of the classification system presented in relation to this aspect is that there is no consideration

[1]Giga events are seen to be a contemporary concept, fuelled in part by growing costs (Müller, 2015).

of inflation in the use of broadcasting rights, and that it does not account for external variables that could determine the size of fees paid (e.g. location could be an important factor in fee determination).

Cost is another critical characteristic considered by Müller (2015, p. 632), with the reasoning being that while attractiveness and reach "focuses on the output side of mega-events", cost captures input and spending on infrastructure. Some mega-event locations will incur in substantially higher costs compared, for example, to those in rural locations, thus introducing some notable disparities. When it comes to defining "transformation", Müller refers to various definitions, including that of Hiller (1999, p. 183), who argues that mega-events should have "significant and/or permanent urban effect".

Flyvbjerg's sublimes and classification system of events

Flyvbjerg (2014) outlines a system of classification of events but does not relate his work to sporting events, although he refers to the Olympics. Flyvbjerg (2014, p. 6) defines "megaprojects" as "large-scale, complex ventures that typically cost a billion dollars or more, take many years to develop and build, involve multiple public and private stakeholders, are transformational, and impact millions of people". These events are seen as having influences upon society, and do not fit into pre-existing structures, with "aspirations, lead times, complexity and stakeholder involvement" completely different to normal sized projects (Flyvbjerg, 2014, p. 6). The author considers the Olympics as an example of a megaproject, alongside space exploration, logistics systems and transport.

Methodology

Towards the development of a classification of esports events

Each of the four mega-event dimensions and four mega-project sublimes provided by Müller (2015) and Flyvbjerg (2014), respectively, are assessed against figures and characteristics specific to esports in order to evaluate their suitability for the latter and develop a rationale for the adaptations undertaken.

From visitor attractiveness …

Müller (2015) found that the number of ticket sales is the best proxy for attractiveness. This measure is slightly more difficult to account for in relation to esports events, as many are hosted online, and in-person attendance is sometimes low when compared to SMEs. It is also low in comparison to online viewership. One of the highest attended esports events in terms of in-person attendance was the Intel Extreme Masters Katowice 2017 with 127,000 people attending (de la Navarre, 2023), but when considering online "attendance" the largest event was the LoL Mid-Season Invitational 2018, with 127 m unique visitors (Borisov, 2018). This compares to in-person attendances of 2.9 m for the 2018 FIFA World Cup, and 6.2 m for the 2016 Summer Olympics (Lange, 2022; Transfermarkt, n.d.). While esports may not ever reach the same heights in terms of attendance, its popularity is increasing, but fans tend to engage in a different way, preferring online viewership over physical attendance. The nature of esports lends itself to large viewership of events that locally may not attract much support, and also encourages viewership from all over the world (Gough, 2022).

One issue which needs to be resolved is how to relate Müller (2015)'s stated characteristic of "attractiveness" to esports. Physical attendance does not appear to act as a proxy for attractiveness in the same way as with SMEs due to the lack of connectivity between physical attendance and attractiveness. This is illustrated by the relatively small size of in-person attendance when compared to online attendance, particularly when considering the largest events. For example, the 2019 Fortnite World Cup had a physical attendance of approximately 23,700

but had an online viewership of over 2.3 m (Epic Games, 2019). As a result, the closest alternative would be online attendance, which takes into account attractiveness from different locations rather than just the local area. This eliminates requiring estimates in relation to viewership outlined by Müller (2015) in the example given for the Olympics as viewership figures are often recorded and visible openly on platforms such as Twitch and YouTube. However, online attendance may also be considered as a proxy for mediated reach, the next dimension from Müller (2015). For this reason, it was decided not to disregard in-person attendance based on the sole consideration of visitor attractiveness but, instead, to assess whether to retain it or not after having considered mediated reach.

… and mediated reach to online and in-person attendance

Achieving a similar measurement to mediated reach, as outlined by Müller (2015), for esports could be challenging. Müller (2015) suggests using broadcast rights values as a proxy for reach, which could be a possibility for esports.

One of the largest deals in esports was the $90 m paid by Twitch for the first two years of Overwatch League rights (Fischer, 2018). Despite such growth, this remains a comparably much lower sum than that generated by conventional sports, such as the $7bn gained for the broadcasting rights of the English Premier League in men's football over 2022–2025 (Bassam, 2021). Besides, there could be a problem with using broadcast rights to analyse the mediated reach of esports. For instance, it could be argued that a league, covering 29 weeks, is not an "event", in the same way that a football league would not be classified as an event. Furthermore, when considering shorter-term competitions that better fit the definition of an event, broadcast deals for esports are not often publicised in detail. The same issue can be said of sponsorship values, which could be considered as another potential proxy for mediated reach. Sponsorship values are more widely reported than broadcast rights but have a similar problem in that details are not often reported in full, and a specific team sponsor does not cover the mediated reach of an entire event. A clear example of this is the reported $25 m cost of sponsoring a team in the Call of Duty league; this cost is not explicitly confirmed and covers at least six months of games (Hume, 2019).

Player numbers were considered as an alternative to broadcast rights. This was due to their ability to capture popularity, with the platform Steam capturing how many players are currently playing the top 100 most popular games. This is also a good measure of popularity over time, with the number of players taking into account numerous factors including popularity of competing games and increased popularity as a result of an event taking place. However, there is a lack of connectivity between player numbers and individual events, with a lack of evidence that player numbers are connected to event viewership or the reach of a specific event. There would also have been an overlap between viewership (already suggested for visitor attractiveness) and player numbers, which would have been used as a proxy of viewership for mediated reach. In the end, it was decided to retain both online and in-person attendance to capture both visitor attractiveness and mediated reach.

From cost to prize money

As part of his classification system, Müller (2015) outlines the cost of hosting events as one of the dimensions as part of his classification system, with examples given of the Olympics, Pan American games and World Expo. Yet, no specific proxy is used to account for this factor. Aziz (2014) provides an insightful case study around the costs of hosting an esports event for a smaller games' developer. The overall cost was reported to be $67,443, with 52% paid directly by the developer and the

remaining amount paid by sponsors and individual contributions. This is a low amount in comparison to larger events. However, these refer to a relatively small developer and event. The event was also hosted in 2014, and with the exponential growth of esports insights could be outdated by now. This event is something of an anomaly with costs detailed in full, with the cost of hosting specific other events difficult to ascertain due to restricted levels of publication of costs. McCarthy (2019) outlines the reasoning for hosting esports events. Cost often increases in scale alongside the number of attendees and the general size of the event. However, events are often scheduled alongside conventions, can include online-only qualification elements, and sometimes feature longer-term schedules, all of which complicate any attempt to measure costs in relation to esports events. Looking at cost overall can be disregarded due to the issues mentioned relating to the unavailability of widespread cost figures. Furthermore, the rise of online-only large-scale events makes measurement even more difficult due to associated costs being negligible, with required infrastructure already existing.

Analysing prize money as an alternative to cost is worth considering. When Müller (2015) includes cost in his classification, he attempts to gauge the size of events by measuring the differences between nominal associated costs across events. In this way, prize money could be seen as a transparent and easily obtainable alternative. As the size and scope of events increase, prize money tends to increase. Data are also widely available, which could be due to the willingness to advertise the size of winnings of events. An example is the promotion relating to the Fortnite World Cup and the potential to claim a share of the $30 m handed out (Epic Games, 2019). The actual cost of an event and the price of hosting seems marginal, particularly in comparison to the budgets of large companies that run the events. For example, the largest prize pool of the largest esports event was over $34 m (EsportsEarnings.com, n.d.), with the cost of hiring a venue small in comparison.

From transformative impact …

Müller (2015) outlines "urban transformation" as one of the key measures of classification. However, this may not necessarily hold true for esports events as they are typically held in pre-built arenas, with an example being the 2019 Fortnite World Cup which took place in the Arthur Ashe Tennis Stadium in New York (Stuart, 2019). This supports the idea of dropping transformative impact as a measure when it comes to develop a classification of esports events. As an alternative, it was considered Flyvbjerg (2014, p. 6)'s four criteria or "sublimes" for measuring the size and frequency of megaprojects, namely "political, economic, technological, aesthetic".

… to political …

It could be expected that the political contribution of esports may be marginal. Flyvbjerg (2014) focuses more on the satisfaction politicians would get from hosting of events, and when esports events are comparatively much smaller than SMEs, there may be a less significant level of political impact. However, there are a few crucial examples of esports and politics overlapping to provide impact in political spheres. Yu (2018) explains that China sees the digital economy as key to restructuring its economy from a low-wage model to one focused on innovation. Among the key targets are ecommerce, literature and esports. The example of China illustrates how esports can have political impacts, fuelling a change in their economy and developing relations with (South) Korea, such as the collaboration in the effort to have esports included in the 2022 Asian games (Yu, 2018). Furthermore, Ashton (2019) outlines how esports and politics are linked. The example given is that in Malaysia, the government has committed $2.5 m to esports, and in China the city of Hangzhou

intends to invest up to $1.26b in 14 individual projects by 2022. Ashton (2019) makes the point that esports are influential within politics for other reasons, including Korean esports professionals potentially being exempt from conscription by 2022. Visas and taxes are also being introduced and changed to accommodate for the increased impact of esports. Wong and Meng-Lewis (2022) also outline how China leverages esports as a tool for soft power diplomacy, exploring its strategies, resources, and impacts on global perception, emphasising esports' role in enhancing China's image and influence internationally.

… technological …

Flyvbjerg (2014) explains that the technological sublime is about pushing the boundaries of what is possible and developing cutting edge technology. Esports events have an obvious technological impact since they are closely associated with utilising the latest technology. For example, traditional first-person shooter games can have technological impacts beyond what would be expected. Valorant, one of the most followed first-person shooter games, introduced a revolutionary system based on predicting player movements and reducing the differences in what each player sees in order to create as fair a system as possible. This is a positive example of Flyvbjerg's "longest-tallest-fastest" concept related to technological sublimes, with the effort to make a game as equal and as advanced as possible (deWet, 2020). More generally, esports and games are at the forefront of many technological innovations, with particular regard to immersive technologies like virtual and augmented reality (Fleming, 2020).

… aesthetic …

There appears to be minimal congruence between the idea of aesthetic outlined by Flyvbjerg (2014) and esports events. Flyvbjerg (2014, p. 8) defines aesthetic elements as "the pleasure designers and people who love good design get from building and using something very large that is also iconic and beautiful, such as the Golden Gate Bridge". Locations such as arenas are rarely built for esports specific events, are normally already constructed and are usually linked to another sport or purpose. Aesthetic elements will be considered, for example, whether an event is the first of its kind, but the expectation is that there will not be widespread aesthetic elements within esports due to the arenas not being built specifically for this activity or chosen primarily for their aesthetic dimension.

… but not economic

When considering economic impact, Flyvbjerg (2014) focuses on money being made by individuals such as engineers, architects and lawyers involved with projects. However, due to data access issues, this information had to be disregarded in the present research. The economic impact could also be worth considering on a macro level. However, it is in part captured and contained within measurement of in-person attendance since this includes visitors from outside the territory. Therefore, the economic sublime is excluded in our analysis.

Size components and dataset. As outlined in the literature review, Müller (2015) determined that, for an event to be as major, it must feature an "L" size in one dimension; in order to be mega, it must feature two "L" dimensions; and to be a giga event it must feature three "L". For the purposes of this study and the modified classification categories, counting the number of "L" in order to determine the size of an esports event has been disregarded. This serves the purpose of allowing for size to be judged more evenly, not preventing an event being classified as a larger event due to it being lower in one or more categories. Removing this caveat increases the probability that the framework is seen as valid and reliable by the stakeholders likely to use and / or assess it by

offering a more accurate and flexible classification system.

The dataset used is comprised of 53 events, from 2013 to 2021 capturing the magnitude and significance of esports events from different perspectives: viewer counts, in-person attendance, associated prize money, and their broader implications in the domains of politics, technology, and aesthetics. This data was sourced from community websites (such as esportsearnings.com), game-specific and corporate websites (such as liquipedia.net and fortnite.com) and news articles (such as from the Guardian). The dataset includes esports events across the spectrum of genres, such as card-based games like Hearthstone and first-person shooters like Overwatch. A mixture of free-to-play, buy-to-play and pay-to-play events is also included. Missing data is observed in certain columns, and there were some anomalies in the dataset which needed addressing. For example, the peak viewers category had some events with much higher figures than the rest. Due to this anomaly, both unique and peak viewers were considered for online attendance where possible in order to check consistency between both values across events. Figures for peak viewers were more widely usable, but not available for all events. This adjustment resulted in unique viewers being used as a criterion in the rare cases where peak viewers were not available.

Index construction. Compared to previous literature (e.g. Müller, 2015), the development of an index utilises a more objective approach to determine the size numerically, then establish the size as either minor, major, mega or giga.

The method employed by Nardo et al. (2008) for constructing a composite indicator follows 10 clear and distinct steps. These steps are listed in Table 1. Steps one to three have already been tackled in the earlier classification development, while steps six to ten are not addressed here (e.g. no weighting applied).

Table 1. 10 steps for constructing a composite indicator (Nardo et al., 2008).

Step	Description
1	Theoretical framework
2	Data selection
3	Imputation of missing data
4	Multivariate analysis
5	Normalisation
6	Weighting and aggregation
7	Uncertainty and sensitivity analysis
8	Back to the data
9	Links to other indicators
10	Visualisation of the results

Step four involves multivariate analysis, and step five normalisation. These steps were undertaken the opposite way round as they are considered interchangeable.

Step four: normalisation

Normalisation is the process of making the variables comparable. In this stage, the aim is to select a procedure that fits the data and theoretical framework, discuss any outliers, and undertake scale and skew adjustments (Nardo et al., 2008). In this case, the data is standardised, which is where data are converted to a common scale with a mean of zero and a standard deviation of one (Nardo et al., 2008). This process helps account for variables with extreme values that would have a greater impact on the index. Data are also logged at this stage, to help deal with any skewed data, decreasing the variability of data and making the data conform more closely to a standard distribution (Taber, 2018). Finally, the average scores obtained are transformed so that their values are between 0 (if an event is the worst performing on each of the measures) and 10 (if an event is the best performing on each of the measures). Accordingly, an event will be considered as minor if its score is between 0 and 2.5-, major if its score if between 2.5 and 5-, mega if its score is between 5 and 7.5- and giga if its score is between 7.5 and 10.

Step five: multivariate analysis

Multivariate analysis includes studying the structure of the dataset and assessing its suitability, which then guides subsequent methodological choices. To undertake multivariate analysis, a test is undertaken to determine the Cronbach's alpha of the overall index, as well as what it would be when removing one measure used, to measure the internal consistency. Cronbach's alpha is considered as a measure of scale reliability, and in this case measures the internal consistency, or how closely related the set of items are as a group. It takes any value from 0 to 1. Cronbach's alpha is not a statistical test, but instead is a coefficient of reliability based on the correlation between individual indicators; therefore, if the correlation is high, then there is evidence that the individual indicators are measuring the same underlying construct, and a high Cronbach's alpha or equivalently a high "reliability", indicates that the individual indicators measure the latent phenomenon well (Nardo et al., 2008). Nardo et al. (2008) refer to Nunnally (1978) having suggested 0.7 as an acceptable reliability threshold. While this has been challenged (Taber, 2018), it remains largely used in the literature (González-Serrano et al., 2021; Tavakol & Dennick, 2011). Accordingly, it was used in the present research.

Table 2 provides the results in our case. In the dataset being considered, the overall Cronbach's alpha is 0.58, which is lower than the acceptable reliability threshold. A closer look at the contributions from the different components is needed to better understand where this overall score comes from.

Table 2. Cronbach's alpha of the overall index and each of its components.

Item	Sign	Item-test correlation	Alpha
Online attendance	+	0.7707	0.3732
In-person attendance	+	0.8261	0.2832
Prize money	+	0.6239	0.5577
Sublimes	−	0.444	0.7152
Overall			0.5822

Of the four measures, online attendance, in-person attendance, and prize money are positive, so contribute to the strength of the index. Sublimes, on the other hand, is negative, meaning it reduces the strength of the index. In other words, one of the characteristics, sublimes, causes a decrease in the consistency measured by Cronbach's alpha, and if the item sublimes are removed, Cronbach's alpha increases to a level of 0.72, making it acceptable.[2] This is likely due to the characteristics measured by sublimes being different to the other three, capturing relatively unique aspects of events which are not close to being measured by the other variables. Further, the sublimes component is measured in a different way, with political, aesthetic, and technological elements being captured, but this is considered on a case-by-case basis with no set structure or measure of these. These sublimes were initially selected based on an often-cited publication on megaprojects (i.e. Flyvbjerg, 2014), which anchors their usage in a theoretical basis. However, Cronbach's alpha informs that this theoretical basis does not sufficiently align with Müller (2015)'s theoretical foundations to merge them in a single construct. Therefore, the adaptation of Flyvbjerg (2014)'s sublimes was eventually disregarded from our index.

Based on the elements outlined previously, esports events are defined as esports competitions of a fixed duration that can be classified as minor, major, mega or giga events, depending on their levels of online attendance, in-person attendance (if any), and prize money.

Results

Of the 53 esports events analysed, 4 are considered as giga, 17 mega, 21 major and 11 minor, see 10 selected examples represent the different sizes in Table 3. Games that have more regular events tend to have a larger number of smaller events (minor or major). However, a pattern emerges and shows that most games have a "World Championship" or

Table 3. Cross section of final event sizes.

Event	Index score	Ranking	Classification
League of Legends World Championship 2017	8.56	1	Giga
League of Legends World Championship 2018	8.06	2	Giga
The International 2017	7.55	3	Giga
The International 2016	7.53	4	Giga
Fortnite World Cup 2019	7.29	6	Mega
The International 2014	6.7	10	Mega
Intel Extreme Masters Katowice 2017	6.61	11	Mega
Intel Extreme Masters Katowice 2016	5.79	18	Mega
BlizzCon 2016 (Hearthstone)	4.82	25	Major
ESL One Cologne 2015	4.56	27	Major
SMITE World Championship 2015	3.06	40	Major
Halo World Championship 2016	2.38	43	Minor

similar that is the flagship of a given season. In every case, this event is the largest of any given year. Another significant influence on the final classification system is the anomaly that exists around Dota 2 and prize money. Logic would dictate that more popular games would generate larger prize pools, but Dota 2 accounted for four of the top 5 events in the data set in terms of prize money, while being around or below average in attendance (in-person and peak). This is due to the relevant events featuring a system where exclusive cosmetic items are purchased in-game and directly contribute to prize pools (Van Allen, 2017). This is significant as the only other event scoring so high on prize money was the Fortnite World Cup 2019. Fortnite also represents a significant trend, with two of the three online-only events to feature, classified as major or minor events. The aforementioned Fortnite World Cup 2019 is classified as a mega event, fuelled by large viewership, the second largest prize pool in esports history when solo and duo events are combined (EsportsEarnings.com, n.d.) and strong in-person attendance.

It is also worth noting that, within the dataset used, growth can be observed. The season-ending League of Legends World Championship, for example, has seen in-person attendance grow from 18,188 in 2013 to 91,000 in 2017 and peak viewers growing from 2.7 m in 2014 to 44 m in 2018. The largest prize money figures in the dataset are all from recent years, with The International 2019 having the largest prize pool of $34.4 m, compared to ESL One in 2015 which had a prize pool of $250,000.

Discussion

The classification system for esports events developed in the present study not only offers a comparable level of face validity to Müller (2015)'s scoring system, but, in fact, enhances it through the incorporation of an index. This classification system presents a potentially valuable tool for distinguishing and differentiating events within the esports landscape and beyond. Therefore, it has the potential to contribute to practice and theory in different ways.

Contribution to practice and theory

The classification system for esports events carries several implications for stakeholders in the esports industry. Specifically, it provides managers and organisers of larger events with a mean to effectively communicate the scale of their events. Concomitantly, it grants those overseeing smaller events insights into the areas where growth is feasible to attain and become larger. The present research also opens the door to benchmarking, enabling the establishment of best practices (e.g. how have larger esports events reached their size?), replication potential for different esports events (e.g. can I apply the same strategy to the event I manage?), and the identification of

[2]The alphas for online attendance, in-person attendance and prize money become 0.55, 0.62 and 0.6965, respectively, meaning they should all be retained for the overall Cronbach's alpha reaching the 0.7 threshold.

unexplored directions (e.g. what has not been applied to esports events yet?). The transparency and clarity of the criteria employed in this scoring system facilitate its practical application by industry experts. Moreover, the findings of this research hold relevance for policymakers, informing the formulation and execution of government programmes and investment strategies. This significance aligns with the growing recognition of esports by governments at both national and local levels (Ashton, 2019). One example is represented by the city of Katowice, which has embraced the title of "esports capital" (Kornaszewski, 2021), despite its relatively modest size. This example illustrates the potential for smaller cities to engage with esports events, as opposed to bidding for SMEs. Three of the largest events in the dataset were hosted in smaller cities such as Katowice. Furthermore, Peng et al. (2020) explain the recognition of esports as a sport in countries like China, where esports players are acknowledged as athletes and the government directly governs the esports industry, which signifies a unique approach that differs from many other countries. Peng et al. (2020) also refer to France which has similar but less extensive government involvement, with regulations on contracts and a minimum age requirement. Beyond the esports industry, the present research can also inspire the classification of other types of online or hybrid events.

These findings also contribute to theory. The classification of esports events fills a gap in the literature on esports and can inspire the classification of other events in a context of growing digitalisation in different sectors, including the sport industry. In relation to the debate about whether esports are sports, the study provides elements contrasting with this view due to esports events being far below SMEs in terms of visitors/in-person attendance, broadcasting rights, cost and transformation. Yet, the growth of esports events might be, to some extent, at the expense of SMEs in the future, levelling the gap between both types of events and leading SMEs to get inspiration from esports events, e.g. from a technological perspective. This is consistent with Ke and Wagner (2022) who found that the COVID-19 pandemic compelled traditional sports organisations to integrate with esports, showcasing both the success and potential challenges of this strategy and indicating esports' enduring influence on sports brand innovation.

Limitations and future directions

One of the limitations of this study is represented by some data unavailability, especially for smaller events. Our findings highlight that even the smaller events classified attract large number of viewers, attendance, and publicity. However, some of the smaller events have had a lack of attention to detail in terms of recording data such as viewership and player count. An effort should be made to keep a record of and capture this data, particularly in a time when esports are being treated more seriously by a wider section of the population. Future research could focus on developing a standard for embracing key statistics in relation to esports events, based on the scoring system developed. Another direction is how the ideas developed here on esports events, informed by Müller (2015)'s classification of SMEs could, in return, inform future research on SMEs. In a context where technology is increasingly important in sport, a trend exacerbated by COVID-19 and the subsequent restrictions on outdoor physical activity and stadium attendance, reconsidering the classification of SMEs based on the insights developed may prove fruitful.

Also, due to the lack of available data for online attendance, two measures have had to be used, namely "peak viewers" and "unique visitors", the latter less widely available and being used where peak viewers were not available. Generalising the use of unique visitors would be more representative of the sustained

online attendance for esports events and solve the anomaly of events with peak viewers much higher than the rest. If data for unique visitors become more widely available, it will be possible to primarily use them instead of the data for peak viewers and assess whether it makes any difference on the classification made in the present research. The method has an inherent level of subjectivity, through the selection of variables, and through the boundaries set and assigned to each score. One limitation that could be suggested is the lack of weight assigned to variables. Müller (2015)'s original work did not assign weights to any of the measures used to establish size, and this was drawn forward, but could have been used to increase the accuracy of measurement.

The model could be improved with data being more readily available. There has been an improvement in data availability across the range of events in the dataset, with the later events having much more reliable data. Furthermore, there will need to be a form of scale or adjustment implemented in the model to ensure that the classification is accurate as more recent events tend to have larger scores. Implementing a standardisation process in future research would ensure that the model remains relevant and useful. The development of the index based on the classification naturally has similar issues. It is difficult to establish if one or more of the variables should be more highly weighted in the development of an index. As mentioned previously, the framework established for developing composite indicators is not intended for this usage, and is more for comparison, often between nations or regions. This type of index would also benefit from more data being both available and accessible, and similarly to the classification of esports events, data being widely available across a longer time period would improve the quality of the index developed.

Despite the limitations identified, the present research contributes important knowledge to practice and theory through the development of an original composite indicator allowing measurement of the size of esports events. It can inform future research on esports events and more generally events, for example in terms of size and balance between online attendance, in-person attendance, and prize money, or any other mix of components identified as relevant based on a methodology similar to the one suggested in the current paper. Therefore, our research presents high potential in terms of significance and reach.

Disclosure statement

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