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The Rise of the Bentley and Broad War Boys: Converting Nascent Automotive and Computer Technologies into Mainstream Sports

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Introduction

All professional sports teams are businesses (Dart, 2014). They are affiliated with other businesses which produce the associated equipment and attire or supply financial support in exchange for promotional exposure. For example, Manchester United is not only a business but also a publicly-traded company. Nike manufactures the footballs the team plays with and Adidas the jerseys and shoes it wears; Chevrolet and Aon are identified as the team's principal partners; and Aeroflot is the team's official carrier (Manchester United FC, 2019). On the other hand, non-professional sports traditionally needed not involve business except in the most trivial ways. Neighbours can start football teams and even leagues, and they can play in the same clothes and shoes worn for other everyday uses. Although some specialized equipment manufactured by businesses will almost always be required, inexpensive versions can be obtained without the need for external financial support (Lera-López & Rapún-Gárate, 2005). More recently, however, governments have sometimes demanded certain non-professional clubs to introduce some measure of professional management (Thiel & Mayer, 2009). This increases the expectation of sport club members to (financially) contribute to the club, or for clubs to seek external sponsorship (Papadimitriou, 2002; Thiel & Mayer, 2009).

There are, however, a few sports that are associated with a technology so demanding that they could not exist without the involvement of businesses. One is motorsports, which could not exist without automobiles (or automotive components) manufactured by businesses. Similar to current motorsport manufacturers, the earliest racers in the late 19th century had engines and other elements that even if assembled by individual craftsmen, used parts or plans obtained from commercial businesses (Aston & Williams, 1996; Hassan, 2014; Mariotti, 2007). Another example appeared roughly a century later—e-sports, here defined as "organized video game competitions" as in Jenny, Manning, Keiper, & Olrich (2017). Without sophisticated electronic hardware and software produced by commercial businesses that have become household names, e-sports would be unimaginable.

These commercial businesses could however not have survived by solely developing equipment for the rich hobbyists and sports enthusiasts interested in competition. There was a need to find ways to make the technology attractive and useful for the general public. Somewhat unexpectedly considering the 100 years or so separating their origins, both motorsports and e-sports took roughly 30 years to reach popularity within the general population. The paper argues that the development of these technologies into mainstream

sports was governed by three important, interrelated factors (Betts, 1953; Cofaigh, 2011; Hassan, 2014; Jackson, 2015; Li, 2016; Martin, 2002; Rose, 1949; Scholz, 2019):

(1) the pace at which the technology became mature enough for competitive success to be sufficiently attributable to human factors, that is, for it to become a "sport";
(2) the pace at which the technology infused popular culture deeply enough to generate a sufficient number of participants and spectators; and
(3) the pace at which businesses recognized the competitions as attractive avenues for product promotion.

This paper will compare the early factors that were involved in developing sports branches of the nascent automobile and computer industries. It will show that, for both technologies, it was not only industries directly profiting from mainstreaming the technology, but mostly industries indirectly related to these technologies (such as media), that drove the evolution of these industries into sports. The paper will start with an overview of how business, media and technology intertwined in the evolution of both motorsports and e-sports. It will compare the influence of the three identified factors on motorsport and e-sports, concluding with how these factors will continue to influence the evolution of both sports.

The Origins of Motorsport: Showcasing the technology, the car brand, or the race organiser?

Automobility saw its roots at the end of the nineteenth century. In 1885, internal combustion engines became small and light enough to be installed in motor vehicles (McShane, 2014). Between then and 1914, automobiles became an essential element of everyday life, and motorsports matured with sophisticated vehicles competing in prestigious international competitions (Cofaigh, 2011; Kanger, Geels, Sovacool, & Schot, 2019; Rose, 1949).

There is no shortage of histories of the earliest years of the motorcar industry, mostly featuring vehicle details and biographies of key figures (Flink, 1990; Laux, 1963, 1976; McShane, 2014; Thompson, 1954; Thoms & Donnelly, 2017; Twitchen, 2004). That this industry could not have been considered an *industry* without there being a sufficient number of substantial commercial enterprises to make it one, often fades into the background. The image of a handful of skilled craftsmen assembling a few automobiles in a workshop and delivering them to select (wealthy) sportsmen is not without a kernel of truth. However, such ventures would almost inevitably fail without their growing into serious *businesses*.

Growth required a broad customer base beyond select wealthy, discerning sportsmen who had the time, money and the determination to overcome obstreperous machinery and poor roads to motor for pleasure. Automobiles had to attract the interest of the larger part of the population who

needed inexpensive, robust and convenient forms of transport. Manufacturers had to find marketing strategies to inform these prospective purchasers that automobiles could fulfil their needs at a price they could afford with repair shops conveniently available to assist them with maintenance whenever required (Idlewild, 2009; Laird, 1996; Wells, 2007).

Marketing posed an especially interesting problem for start-up companies in the late 19th and early 20th century. Word-of-mouth is reputedly the best form of advertising, but it requires knowledge of the product by a considerable clientele (Brown & Reingen, 1987). The only other advertising media available at the time were newspapers and magazines along with billboards, all of which fortunately were quite numerous (O'Barr, 2010). However, automobile manufacturers needed to establish a strong link with publishers of these magazines and newspapers to ensure their products would be covered in stories as well as advertisements.

One avenue to bring both industries together was through automobile races. Organizing races was extremely costly, however, and one could question where profits were intended to come from. It is doubtful that there was more than a nominal entry fee, as it would have been important for the first ventures to attract a large number of entrants and spectators while not placing any financial hurdles. Race organisation was therefore only undertaken by people in a position to benefit from them: aristocrats and popular press publishers (Cofaigh, 2011).

French aristocrats, who were involved in the organisation of the first *races*, had invested in the automobile industry. Some members had also started their own automobile manufacturing companies. As such, they were looking for ways to make their investments profitable (Cofaigh, 2011). By late 1893 when the Paris–Rouen contest (reputed to be the first "automobile" race) was announced, manufacturers were seeking public displays on the capabilities of their own products. A year later, the follow-up contest held on July 22, 1894 was a so-called *concours* (trial), not a race (Cofaigh, 2011; McShane, 2014; Rose, 1949). There was no need to drum up public interest, which was far from mild, and the event was really more of an automobile show than a competition and had also been structured in such a way as to show the automobiles in the best possible light. This idea of displaying the advantages of automobiles, rather than racing just to win events, continued until at least the 1910s (Holladay & Coombs, 2013; McShane, 2014; Rose, 1949).

However, the needs of automobile owners were more complex than simple transportation or even pleasure. Then as now, buyers selected an automobile to send a message about their personal identity (Schembri, Merrilees, & Kristiansen, 2010). Automobile manufacturers recognized very early on that their products delivered psychological as well as functional benefits and tailored their marketing efforts to create and sustain distinctive brand images (Escalas & Bettman, 2005; Swaminathan, Page, & Gürhan-Canli, 2007). High profile national and international races could associate automobiles with the real or imagined thrilling lifestyles of their rakish drivers. More local

competitions could facilitate the vicarious experience of spectators closer to the action envisioning themselves in the drivers' seat.

At the same time, the popular press was benefitting from increased levels of literacy in society and therefore a growing readership. They were actively seeking ways to ensure this new class of readers would purchase their papers over competitors'. With a simultaneous increase in literacy with interest in sports, their motivation was to take advantage of a pre-existing interest in a product, whether bicycles or automobiles (which competed with each other), or to create an interest for subsequent exploitation (Cofaigh, 2011). Publishers and other promoters created profitable opportunities to simultaneously satisfy both sorts of demand by creating automotive events and then writing about them.

More explicitly, by co-organising these races, newspapers would have first (and sometimes only) access to news stories related to the race, giving them the possibility to publish as many stories about the race as they deemed necessary to capture the interest and enthusiasm of their readership (Holladay & Coombs, 2013). In summary, it is doubtful that there would have been enough interest the following day in the results to stimulate sales of *Le Petit Journal,* which organized the first event, but in the long term, the event could promote the paper in general and perhaps initiate a successful tradition having the potential to earn entry and admissions fees along with publicity with future events. In that sense, the slogan '*Race on Sunday; Sell on Monday*' (Cornwell, Pruitt, & Van Ness, 2001) was less likely to refer to the sales of automobiles than to the sales of newspapers and magazines and advertising space in them. This intimate relationship between sports and media was not solely limited to motorsports, and has been the subject of much research on the position of sports in society (Rowe, 2015).

Media coverage about automobile technology thus supported the manufacturers, as people were fascinated by the novelty, the excitement and freedom automobiles represented. Even though they might not be able to afford automobiles themselves, people sought out information about them directly (looking at them) and indirectly (reading about them) (Betts, 1953; Flink, 1990; Holladay & Coombs, 2013; McShane, 2014). For manufacturers, it was advantageous to participate in the events to display their products and to place advertisements in newspapers and magazines adjacent to the articles about those events. After all, those who were reading the articles were among the most likely sales prospects (Holladay & Coombs, 2013). Thus, the inaugural events of organized motorsport were driven by: (1) automobile manufacturers that wanted their products to be seen, (2) a curious public that wanted to see them, and (3) a press promoter who saw a profitable opportunity bringing the two together.

Perhaps a more interesting question is whether the event was really motor*sport*. That it is described as a competition and had a winner *might* qualify it as a sport, but that it is elsewhere described as a *concours* and was essentially a mobile display is more characteristic of a sort of motor*show*. Furthermore, the first automobile organization (Automobile Club de France) was only started

in 1895, meaning the 1893 event predates any institutionalization of motorsport (Cofaigh, 2011), making the description of the event as a "sport" from a scientific perspective debatable (Jenny et al., 2017). Regardless, by 1899, a packed number of distance races, hill climbs, and speed trials for every imaginable motorized vehicle were scheduled throughout Europe and the United States, and they attracted large audiences that justified continuation of old events and creation of new ones (Cofaigh, 2011; Holladay & Coombs, 2013; Laux, 1976; McShane, 2014; Rose, 1949).

Of course, where there were sufficiently large audiences, there had to have been potentially profitable business opportunities (Jackson, 2015). It appears as if most of the profit was indirect, that is, that no one was paying to participate in or watch the events. Media-sponsored events served to increase sales to increase circulation, and community-sponsored races were also (and still are) a way to stimulate tourism (Rose, 1949; Tranter & Lowes, 2009).

The real problem is to assess the motivations of manufacturers. Clearly, they wanted to sell more automobiles, but how was racing intended to achieve that end? Rose (1949) and others have made much of the technical advances displayed in competition and implied that such improvements were the reason for racing (Cimarosti & McKinney, 1997; Flink, 1990; Hassan, 2014; Kramer, 2009; Laux, 1963; McShane, 2014). One problem with this is that technical advances do not exclusively originate from within racing; from an improvement standpoint, there is nothing about racing that could not be otherwise duplicated in a more controlled manner at a lower cost (Pinch & Henry, 1999a, 1999b). Another problem is that the causation is more likely to run in the opposite direction. It is not that racing improves the breed but that an improved breed improves the chances of winning a race (Pinch & Henry, 1999a, 1999b). If this is correct, then there must be some payoff to winning to justify costly improvements to the breed.

Those final years of the 19th century did see the production of automobiles specifically designed to win races and impractical for other uses. It is possible that there was a market for them from independent competitors and that manufacturers had to demonstrate their competitive strengths in order to make such sales. But the cadre of wealthy racing sportsman was not likely to have been a large enough market to be profitable, especially considering that many of them were industrialists who would have in effect been purchasing their own products from themselves (Ameye, Gils, & Delheye, 2011). A more likely explanation is the aforementioned branding of automobiles, that it was not a specific vehicle itself that won a race but that name on the vehicle. And there were enough wealthy non-sportsmen entering the age of automobility who attributed tangible (power, speed, durability) and intangible (excitement, adventure, status) qualities to that brand (McShane, 2014).

So '*Race on Sunday; Sell on Monday*' is plausible, although there is no convincing evidence from this era. Equally plausible, however, is '*Sell on Monday; Race on Sunday*.' In other words, racing might have stimulated sales, but a greater force was the resources that sales provided for racing.

Manufacturers were human too, and in the late 19th century, many drove for the same excitement, adventure, and status that their customers sought, and they strove for power, speed, and durability for that reason.

The Origins of e-Sports: Love for the game, the technology or the money?

The birth of modern computers is often situated in the 1930s-1940s, with many early systems developed in secrecy due to their military purposes (Martin, 2002; Rosenberg, 2013). Finally after public exposure, there was much interest from the general populace in computers which could perform numerous calculations at incredible speed. There were also many critics, however, arguing about the possible negative effects this new technology could have on society and claiming that these systems would be too complicated for use by non-experts (Rosenberg, 2013).

For further progress, then, researchers had to show how computers could be useful for dealing with everyday tasks by any individual. One strategy was by showing how computers could be used to play games such as checkers or tic-tac-toe. This showed the advantage of computers being able to do a large number of computations in a short time, allowing them to anticipate a human player's moves (Jorgensen, 2009). However, it quickly became obvious that gaming would be more exciting if computers would provide an interface for multiple players to play against one another (Jorgensen, 2009).

One of the first multiplayer games—and often considered the first computer game—was *Spacewar* (Monnens & Goldberg, 2015). The game code was available for other programmers, allowing the game to spread (Monnens & Goldberg, 2015). Although some sources claim *Spacewar* almost immediately grew in popularity (Graetz, 1981), others show that it first became popular from 1968 onwards largely in universities, thanks to a strong increase in the number of computers available at these institutes (Monnens & Goldberg, 2015). Eventually by 1972, the game had gathered sufficient attention to be featured in the television series *21st century* (Monnens & Goldberg, 2015) and popular culture magazine *Rolling Stone*, in which it was covered by the magazine's sports' reporter Stewart Brand (Brand, 1972; Monnens & Goldberg, 2015). The *Rolling Stone* article covered the first *Spacewar* competition, which was organised and sponsored by the magazine at Stanford University and attracted about 20 "competitors" who were members of the research laboratory (Li, 2016). Sponsoring of the event was limited to providing food and drinks to the participants and giving the winners (there were 3 events) a free one-year subscription to the magazine (Brand, 1972; Li, 2016).

The main reason for *Rolling Stone* involvement appears to have been to provide a platform for the magazine to describe the dawn of the modern computer era. *Rolling Stone*, having been founded in 1967, was a relatively new magazine, and it arguably wanted to cement its position as a leading popular culture magazine by being one of the first to cover the potentials computers could offer. Although the story was not surrounded by advertisements for

computer hardware (Baker, 2015), Brand did invite readers to develop their own computers and versions of *Spacewar* (Brand, 1972).

By the time the article was published, the first home game console *Magnavox Odyssey* had been developed and brought to the market (Novak, 2011). Improvements in television technology provided the opportunity for the computer industry to sell products to member of the general public, who could wire the console to their television and play games from the comfort of their sofa. Along with this, the first computer games such as *Pong* were being installed in arcades, which wanted to attract the public to come to play these games (Novak, 2011). As such, the inaugural e-sports event can be assumed to have been driven by: (1) research institutes and game developers that wanted their products to be seen, (2) a curious public that wanted to see them, and (3) a press promoter who saw a profitable opportunity bringing the two together. This bears a striking resemblance to the origin of motorsports described above.

E-sports did not become a global phenomenon immediately after this 1972 championship, however. The first e-sports boom is considered to have occurred in the early 2000s (Taylor, 2012) and, even more curiously, only started to receive serious media attention in the last five years. This might have been caused by the multi-dimensional functionality of computers (and even contemporary game consoles) compared to automobiles. Automobiles provide a mode of transport, and manufacturers compete by improving their cars' speed, technology and comfort, attributes which can in part be showcased through racing. Computers can analyze data in complex sheets, perform mathematical functions, enable communications among machines, write and print text and (nowadays) stream music or videos, all in addition to their potential for gaming entertainment. Initially, the general public was exposed mostly to office computers, which were rather expensive and only of interest to businessmen and electronics hobbyists (Haddon, 1988). Once computers became affordable, advertisements for home computers therefore focused on the practicality of having 'an office at home' or for educational purposes to teach children how to work with computers (Haddon, 1988). How well a specific game could be played on a particular computer was not among the interests of these customers.

Of course there were still the game consoles and arcade games, but the *Magnavox Odyssey* was the only relatively popular console, and arcade games were developed with dedicated hardware that could only be afforded by arcades or wealthy individuals (Novak, 2011). Neither hardware nor software companies therefore had to show the advantages of their systems to the general public, making a '*Game on Sunday, sell on Monday*' strategy irrelevant. Competitions did take place at arcades, however, with players trying to reach the highest score on one of the games available at their local site. For most games, players achieving a new highest score could leave their legacy by filling in three characters next to their score. Unfortunately, the local champion could not see how significant his or her highest score was on a national level (let alone an international level), as these "competitions" did not receive much media attention. There was therefore no enthusiasm for businesses to start sponsoring

these gamers, and gamers did not have the financial resources to travel the world to compare their skills to other local champions.

New interest in competitive gaming occurred in the early 1980s with the arrival of the Atari VCS/2600, which included versions of popular arcade games (Novak, 2011). In 1981, Atari created the *Space Invaders Championships*, attracting more than ten thousand players in the USA to compete against one another and reach the highest score in *Space Invaders* (Li, 2016). This was followed up by a television series *Starcade*, which featured contestants trying to set the highest score in popular arcade games (Borowy & Dai, 2013). These events coincided with the first boom in game consoles (Borowy & Dai, 2013). As the competition in the industry grew, console manufacturers recognised the need to attract gamers to their own products, but since games remained console-specific, game developers themselves did not see benefit in sponsoring tournaments. Apart from the Atari championships, gamers remained unable to compete at (inter)national levels.

The World Wide Web, however, brought online gaming and more generally the usefulness of home computers to the attention of the general public. At its introduction in 1993, about one fifth of American households were using a personal computer. By the 2000s, this had increased to over half the number of households, of which about 80% used the Internet (File, 2013). The World Wide Web gave people access to information from across the world, and this finally allowed gamers to test their skills at an international level. In North America and Europe, a game genre that quickly gained a large community were first-person shooters (FPSs). By 1997, the participants set up the first (semi-)professional leagues, which organized the first e-sports events competed in front of a live audience (Wagner, 2006). As early internet networks were not sufficiently stable for online gameplay (Li, 2016), these tournaments were organised in large venues allowing gamers to compete using a local-area-network (LAN). As all computers on an LAN are connected to the same server, issues related to internet technology were avoided, and players could compete with equal access to technology. LAN tournaments continue to be the standard format of contemporary e-sports (Li, 2016).

The release of *Counter-Strike* fully developed e-sports toward mainstream audiences, with competitions organized by the *Electronic Sports League (ESL)* being broadcast on free-view television channels (Jonasson & Thiborg, 2010). As with the 1972 championship, this rise in e-sports seemed to be mostly driven by gaming enthusiasts and media broadcasters who saw potential in this 'new' form of sport (Li, 2016). Both hoped to increase future profits by exposing the e-sports audience to their products (Li, 2016). Some businesses, especially computer accessory and energy and soft drink companies also started sponsoring e-sport players or teams, albeit in very limited amounts (Li, 2016). These businesses likely expected some increase in sales if the winning gamer or team used their specific headset or keyboard, or their energy drink to maintain focus on the game. When the 2008 financial crisis hit,

however, many businesses retracted their funding, leading to the demise of many e-sports organisations and teams (Li, 2016).

The e-sports industry better survived the crisis in Asia, especially in South Korea, which had started focusing on culture and technology-driven industry after being hit by the 1997 Asian Financial Crisis (Kim & Ryoo, 2007; Lee, 2003; Ryoo, 2009). The Korean e-sports model has developed within an elaborate structure of government support, technological infrastructure, sponsorship and institutionalisation that have allowed (and continue to allow) e-sports to thrive (Taylor, 2012). The Korean government's ministry of Culture, Sports and Tourism approved the development of the Korean e-SPorts Association (KeSPA) in 2000, whose goal has been to regulate e-sports (Kane & Spradley, 2017; Li, 2016). These regulations include organizing tournaments, broadcasting e-sports events, encouraging the general public to participate in gaming and setting rules on employment conditions for professional gamers (Huhh, 2008; Li, 2016; Seo, 2013).

Large Korean conglomerates such as Samsung and South Korea (SK) Telecom saw benefit in these regulations, sponsoring their own teams of professional gamers to create an additional platform for advertising their new technologies (Li, 2016; Scholz, 2019). Korean professional gamers also benefitted from the stability KeSPA created for their working conditions, ensuring that sponsors provided salaries, team houses and training facilities for the gamers. This allowed them to dedicate their time fully on improving their gaming skills (Li, 2016; Taylor, 2012). International and national events were also broadcast on official cable television and online channels. As this provided a new platform for advertisement, companies not directly related to the computer or gaming industry started investing in e-sports, increasing their attractiveness to the young generation as trendy, modern companies. It also provided the professional players with a fanbase, with many Korean players gaining high popularity (Li, 2016; Taylor, 2012). With easy access to fast networks at home or dedicated *PCbang* (Hangeul: *PC방*) allowing gamers to compete over local area networks (LANs), the competition to become (and remain) a professional player is fierce (Huhh, 2008). Although this is the main reason for Korean players to continue to be world-leading e-sports athletes, this competition also made players vulnerable to stress-related issues such as depression (Bányai, Griffiths, Király, & Demetrovics, 2019; Hollist, 2015).

The global resurgence of e-sports in the 2010s again does not appear to be fuelled by computer or game developers but with businesses trying to reach the increasing e-sport community

> Hardcore video gamers […] present a dilemma for advertisers. The demographic represents enormous spending power […] but they are hard to reach with the decline of traditional media, and they crave authenticity. Gaming is a bridge to consumer spending that marketers crave. You are not selling products to the eSports community. What you do sell is emotions (Li, 2016).

This marketing strategy arose from the popularity of professional gamers' channels on social media streams such as Twitch.tv and YouTube (Taylor, 2018). After losing their sponsorship, many gamers started channels to share their gameplay strategies with the community or allow spectators a 'driver's seat' view when they were competing. Tournament organizers started broadcasting tournaments on these social media as well, ensuring e-sports is now considered as part of mainstream events (Li, 2016; Taylor, 2018) and making e-sport events and teams interesting avenues for advertising products by businesses such as Audi (Miceli, 2018), Pringles (Hayward, 2019) or Marvel Entertainment (Duran, 2019).

Many professional sports leagues are also organising their own e-sports versions of their events (FA, 2019; FIA, 2019; FIFA, 2019; NBA, 2019). In motorsports, the e-motorsport series linked to the (real) Formula E Series and World Endurance Championship have received much attention (FIA, 2019; Robeers & Van Den Bulck, 2018), and live streams of racing games such as iRacing or Project Cars are now widely available online (Scacchi, 2018). Many of the e-sports players are also paid by the sports teams they represent (Li, 2016), and human teams or athletes occasionally participate in e-sport events, potentially with the intention to increase interest in the original sport with the gaming community (van Leeuwen, 2019). Li, however, remains cautious about this interest from businesses not directly related to gaming:

The question of whether more money is good for eSports remains unsettled. It can mean more financial opportunity for all involved, but also a shift towards reliance on businesspeople and investors with no emotional ties to eSports. Their focus is revenue, users and growth. That's all fine when the eSports industry is booming. But when the next downturn or crash happens, they're unlikely to have much loyalty to the people who built it and were invested purely on passion (Li, 2016).

Things have however been changing due to differences in marketing strategies of online and mobile games based on in-app purchases (Liu, Au, & Choi, 2014; Nieborg, 2016). Game developers now see e-sports tournaments as a way to attract new audiences to their game and to show their current customers how they can improve their gaming skills and winning chances by buying upgrades. Gamers are also starting to relate to teams or e-sports stars, often by buying the same weapons or outfits as these stars use for their game characters. This is similar to how others are inspired to buy branded products promoted by Instagram or YouTube influencers (Sokolova & Kefi, 2019). Finally, developers also make limited-edition accessories available to promote and provide funding for e-sports tournaments, which might improve sustainability of these tournaments (Li, 2016).

Comparison and Future Perspectives of Motorsports and e-Sports Growth

As suggested in the introduction, three major factors play an important role in the popularising technology-dependent sports. The above paragraphs show that the three factors were important for the evolution of motorsports and e-sports into mainstream events, albeit that the evolution of motorsport was smoother compared to e-sports. One argument could be that competitive gaming started earlier in the evolution of computer technology. Racing started when engines could be fitted into cars and when cars could easily be driven/transported to various (inter)national events. Gaming started when computers were still large, privately-unaffordable pieces of equipment and when the technology had not matured sufficiently to allow LAN or online gaming. Perhaps for this reason, the time gap between the first e-sport events and well-known, recurring events such as *The International* (Li, 2016) was longer than between the first motor race and the organisation of the French *Grand Prix* or *Indianapolis 500* (Cimarosti & McKinney, 1997).

It can be argued that both automobiles and computers relatively soon after their revelation to the public started to influence popular culture. Even though people might not have been able to afford them, they were interested in reading about these new technologies and how they might affect their lives (Holladay & Coombs, 2013; Martin, 2002). Media, unsurprisingly, played a major role in embedding these technologies into popular culture, and it also heavily influenced the attractiveness of sport aspect of both automobile and computer technology to the public. A close sport-media relationship, and the influence of media on the perception of a sport, has been thoroughly investigated previously (Biscomb & Matheson, 2019; Jackson, 2015; Wheaton & Beal, 2003). Media coverage will attract businesses not directly related to the sport, as they can both reach a large audience by advertising during events and associate their products in the minds of fans with the sport and its superstars. This increased funding for the sport leads to an increase in popularity, sparking further media attention (Jackson, 2015; Rowe, 2015; Taylor, 2012). This phenomenon has been investigated in detail over the last few decades, and it is generally known that media is attracted in broadcasting sports due to the possibility of earning money from advertisers willing to reach the audience watching (or reading about) sports, as this is an audience which is generally hard to reach through other media .(Wenner, 1989). Simultaneously, sport teams (or organisations) benefit from media broadcasters willing to pay high amounts of money to obtain (sole) broadcast rights, in order to attract more advertisers (Jhally, 1989; Wenner, 1989).

Of course, to initiate this process, there needs to be an incentive to attract media to the sport by enthusiasts and sport-related businesses. From the above, it is clear that this enthusiasm was stronger for motorsports than e-sports because motorsports were a better starting point for companies to show the advantages in functionality of their cars (speed, agility, endurance) compared to competitors than e-sports for computer technology companies, which focussed

on functionality (data analysis, computation power) that could not be derived easily from competitive gaming performance. This can be a further aspect of the reason why e-sports took slightly longer to become mainstream compared to motorsports, as only recently game developers have become interested in promoting their games through competition.

The upturns and downturns of motorsport popularity since its birth have been strongly influenced by its portrayal in the media. A recent example is the reduced interest in NASCAR (Gold, 2019), which a decade ago was considered to have been surging in popularity (Newman, 2007). Although often showing how advances in motorsport technology benefit technology in everyday cars, media has often scrutinised motorsport regarding its safety (McNish, 2015), strong relationship with products that place people's health at risk (Dewhirst & Hunter, 2002) and, most recently, the detrimental effects of racing and automobiles on the environment (Dingle, 2009; Tranter & Lowes, 2009). The automobile industry and interested parties in motorsports have been able to maintain motorsports' popularity through changes in regulations and advocating new technology. Media is used to promote these new technologies, for example the recent increase in Formula E media coverage (Kalinauckas, 2019; Lovett, 2019; Robeers, 2019).

Interest in e-sports could suffer as a result of the legal complexity associated with the regulation of events and assignment of broadcasting rights of (online) gaming. Gameplay rules are set by the game developers, who maintain intellectual property on any game they release. The game development companies therefore have significant control over which tournaments can be organized and who can broadcast tournaments, as was evidenced by the difficult negotiations between Blizzard Entertainment and KeSPA in 2008 regarding broadcasting rights (Li, 2016). Other issues with the gaming industry that have been scrutinized by the media are related to exposing children and other vulnerable groups to hidden costs related with in-app purchases (Kleinman, 2019a, 2019b), and how these in-app purchases violate regulations associated with current gambling laws (Tassi, 2019).

Furthermore, issues have been raised regarding game and gamer violence (Fleming, 2018; Potkin, 2018; Ruvalcaba, Shulze, Kim, Berzenski, & Otten, 2018) and gaming addiction (Lally, 2018; Reynolds, 2018). Another major issue is the gender and racial imbalance in e-sports (Taylor, 2012). Women joining e-sports events are mostly members of the audience or fan base of (male) e-sports athletes, and female pro gamers are often the victims of online sexual abuse or limited training opportunities, as they are considered to "game differently" or being inferior to their male counterparts (Li, 2016; Taylor, 2012). In some gaming genres, most professional team members are still white males, although a more diverse population can be seen in fighting and strategy games (Li, 2016; Taylor, 2012). Not all countries have an e-sport governing body either, leading to a lack of regulations and to players suing their teams due to unpaid salaries or poor living conditions (Hollist, 2015; Li, 2016).

If e-sports are to maintain their popularity, game developers, professional gamers and e-sport organising bodies will soon have to come to a consensus on regulations regarding the sales of games, sharing of e-sport broadcasting profits, and protection of both professional and amateur gamers from possible gaming-related social, financial and health issues (Abanazir, 2019). Finally, although perhaps e-sports might not yet be considered an Olympic sport by the International Olympic Committee (IOC) due to its lack of physicality (Ntelia, 2019; Parry, 2019), progress towards truly immersive virtual reality (VR) experiences (Yasumoto & Teraoka, 2019) might allow the development of physical e-sports, increasing the likelihood of its acceptance as an (Olympic) sports and further increase in popularity.

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