

Louvain School of Management

How social media's influence endorsement revenues for high level athletes?

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Introduction

In the last two decades, the world faced the emergence of social media. The development of the online platforms brought to high level athlete a number of new challenges and participated to expand their popularity worldwide. With social media top athletes became unintentionally online influencers. Indeed, social media platforms did not mark the beginning of sport marketing and athlete brand image marketing but it started a new type of promotion. Thanks to social media high level athlete endorsement revenue were boosted. In a view of perpetual profit maximization, how should athlete social media should be managed to better their endorsement revenues?

Having a very few research pointing out the real impact of social media in athletes endorsements revenue we decided to establish the actual state of the literature on the subject. This is the reason why a large part of the literature on the marketing of sport, athletes and social media was covered. The goal of our research was to bring some insights to a very narrow subject. We found out that there was a lack of scientific literature on the correlation between high level athletes' endorsement revenues and their social media metrics, and yet most of the people assume that they are linked.

To our mind, it was necessary to expose all the knowledge on topics related to endorsement revenue, high level athletes and their social media. By presenting different model and different opinion in the literature on our subject, we were able to approach the role of social media in athletes' endorsement revenues. Due to an exhaustive theoretical part were able to tackle the practical part in the best way possible regardless the lack of research on the influence of social media on athlete's endorsement revenues.

The goal of this thesis, is to determine whether social media have an influence or not on high level athletes endorsement revenue, the purpose of our work is to answer

the following problematic: **How social media's influence endorsement revenues for high level athletes?**

We will consider the real endorsement revenues of known athlete and confront them to their social media and their metrics. To answer our problematic we will adopt a qualitative comparative analysis similarly to the methodology observed in different articles presented in our literature research.

The first part of this paper will comprise the literature review on the topic and analyse carefully all the knowledge on the link between athletes endorsement revenues and their social media metrics. More specifically, we will introduce concepts such as sport marketing and influencer marketing. Next we will concentrate on social media marketing, going through social media influencers, the theory behind influencer marketing and the value of an elite athlete as influencer in the Era of social media. We will then conceptualize athlete brand equity and illustrate it with some interesting measurement models. Finally we will tackle product endorsement on social media for celebrities and more specifically professional athletes

The second part of this thesis is devoted to the settings of our hypothesis. These hypotheses are built on our literature review and chosen in order to give to most concise answer possible to our problematic. Based on the findings of the first part these hypotheses, try to establish the particularity of high level athletes' influencer. These hypotheses propose affirmation about the link between high level athlete's endorsement revenue and their social media activity.

The final part starts with a brief presentation of the social media studied in our paper namely: Twitter, Instagram and Facebook. We will then expose our methodology and explain how we collected our data. The starting point of our database is the 2019 Forbes annual top 100 world highest paid athlete. The Forbes ranking was then completed with social media metrics specific to each athlete in the list and their

different social media. Each hypothesis set in the second part will then be tested and discussed.

Finally we will end this paper with the conclusion of our findings. We will try to sum up the specificities of high level athletes influencer. Our findings will be an added value to the literature on the subject but it is only a start since our researches were limited. However numerous related research paths are possible.

Part 1: Literature review

1. Concepts

To get started with our literature review we thought it was important to define sport marketing and influencer marketing. These concepts are core to our subject and it is important to have a fair understanding of them before going further.

1.1. Definition Sport Marketing

Sport as a social product and service is marketable like any other products among a community of individuals. The aim of this part is to define the concept of sport marketing and outline the basic theory to date in order to tackle the problematic of this paper with a minimum knowledge of the sport marketing field.

A legitimate starting point will be to give a fair definition of marketing. The American Marketing Association (AMA) declared *“Marketing is the activity, set of institutions, and processes for creating, communicating, delivering and exchanging offerings that have value for the customers, client’s partners, and society at large”*. This definition captures the broad sense and activities of marketing. It includes as well, the responsibility of marketers to create a positive impact on society and communities in which they operate.

Concerning sport marketing, it is based on marketing principles but, the nature of sports and its customers requires a special approach. De Michael & al published in 2018 a book on sports marketing and defined it *“as the use of marketing for creating, communicating, delivering, and exchanging sports experiences that have value for customers, clients, partners, and society”*. However, the definition of sports marketing is not unique, in fact it exists a significant number of them. At the origin, the first definition given by scientific literature on sport marketing came from Advertising Age defined as *“the activities of consumer and industrial product and service marketers who are*

increasingly using sport as a promotional vehicle" (Gray & McEvoy, 2005). In their 2005 publication on sports marketing, Gray and McEvoy liked to attribute the above definition to "marketing through sports" which represents one dimension of sport marketing. The definition was lacking references to the second dimension "marketing of sports".

Marketing of sports represents marketing efforts made by sport leagues, teams, events venues, or individuals including the marketing of sporting goods. Gray & McEvoy (2005) characterized marketing of sports as *"the application of marketing principles and processes to market goods and services directly to sports participants and spectators" (p. 229)*

According to Fullerton & Merz in their paper, published in Sport marketing Quarterly (2008), marketing through sports translate the strategic marketing effort of companies partnering with a sport entity, or athlete for some commercial benefit. Here, a sport is used by companies as a promotional vehicle to their brand awareness.

Gray & McEvoy final sport marketing definition, representing marketing of sport and marketing through sports, is *"the anticipation, management, and satisfaction of consumers' wants and needs through the application of marketing principles and practices" (p. 229).* In their research, Fullerton & Merz segregate sport marketers into two categories. First category includes the one who market sport products to a targeted set of costumers. The second represent sport marketers who promote a range of non-sports products in order to market segment having personal investment in sports entities. (Fullerton & Merz, 2005). However, Hardy, Mullin, & Sutton (2000) went further in their sport marketing definition, *"sport marketing consists of all activities designed to meet the needs and wants of sports consumers through exchange processes. Sport marketing has developed two major thrusts: the marketing of sport products and services directly to consumers of sport, and the marketing of other consumer and industrial products or services through the use of sports promotions."* (p. 9). This last definition has been embraced by Gladden & Sutton (2005).

To understand the sport marketing environment, it is important to differentiate marketing of sport products and non-sport products. In sport marketing, the product sold can be intangible, like a specific event, or it can be tangible such as equipment or

apparel. According to De Michael, & al (2018) marketing benefits brand awareness, it enhances corporate and/or brand image which usually translate into higher sales. In their 2008 paper about sport marketing Fullerton & Merz classified sport products sold by marketers into three categories:

- **Spectator sports products**, such as the game or the event itself materialized by attendance tickets or media viewership.
- **Participation sports products**, this category comprise organized participation, casual participation and access to athletic facilities.
- **Sporting goods** (apparel & shoes, sport-related products), here we find all sports equipment's, sports apparel, different sport shoes and all other sport-related products such as (souvenirs, lessons & refreshments).

Sport marketing strategies can be divided into two categories: Traditional integration and sponsorship-based. While first category uses sports in a marketing program such as a traditional marketing strategy where marketer must identify target markets and develop according to a product, a price and a promotion strategy that fits the product market.

Second category deals with the sponsorship-based strategy. This strategy links a sponsor to a sponsee. The sponsor is the marketer, and the purpose of this strategic alliance is to capitalize on the relationship in order to market a product or a brand. **Traditional sponsorship** is the one involving the acknowledgment of the sponsor through sport property by linking it's logo or trademark to it. **Venue naming rights** known as a building sponsorship in sport marketing refers to a sport facility such as a stadium named after the sponsor. **Endorsement**, the sponsorship-based strategy which this paper will focus the most on, is a contract between a sport personality and a brand where in exchange of compensation, often pecuniary, the personality will become an ambassador of the sponsor's brand. Finally **licensing** can be considered as well as a strategy, these kind of sponsorship deals gives the right to marketer to use the sport property's logo and trademarks in their own marketing objectives. In other words

sponsors can for example produce and sell logo apparel and any linked products of their licensee (Barrand 2005).

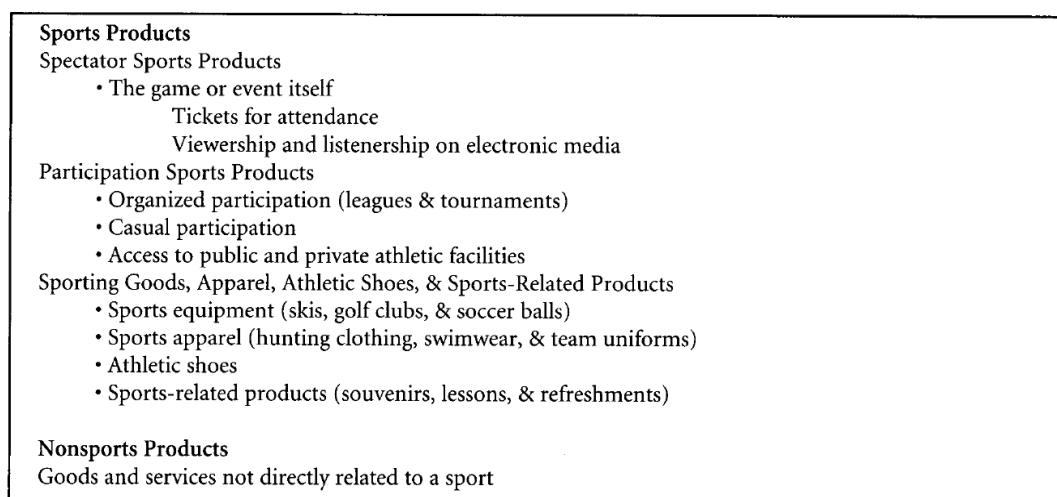


Figure 1: Products Sold by Sports Marketers. Source: Fullerton & Merz

1.2. Definition influencer marketing

Influencer marketing is according to Forbes a type of marketing that focus on specific key individuals rather than on the target market (Forbes.com). Few years ago, when one thought of influencer marketing he probably pictured a celebrity appearance in TV advertisement or a star posing on billboard. Organizations believe customers will be more likely to invest in their product or service by showcasing people of interest to ther target market.

Recently media and technologies have reached a point where companies sit on various options to market their products. These range of offer led to the evolution of social media influencer marketing. Nowadays, people, influencer represent companies through branded content on personal social media networks such as, Instagram, Twitter, Youtube, Snapchat. More and more, consumer attaches importance to fellow consumers to help them in their purchasing decisions.

The social media era brought to brands a new channel to connect with consumer in a more direct and efficient manner. Today most bands use social media influencer marketing strategy to reach their target audience.

Now that we have defined the concept of sport marketing and influencer marketing. Let us enter in the thick of our subject. We divided our literature review into three branches: Social media Influencer marketing, Conceptualization of athlete Brand Equity, and product endorsement revenue. To our mind it was important to analyse these 3 branches to understand all the stakes of high level athlete social media and endorsement revenue.

2. Social media influencer marketing

In this section we will present the state of the scientific literature on social media marketing.

2.1. Social Media Influencers

A social media influencer is an independent, third party endorser who impacts an audience's attitude by using blogs, tweets or any type of social media channel (Fredberg, 2010). Sites such as Instagram, Youtube, Twitter and Facebook influencer can create content to promote a brand and obtain more followers.

According to Fredberg (2010), it is vital that brands use social media influencer due to their success. Technology has reached a point where it is possible to assess influencer impact for a brand by tracking key numbers such as number of views on a blog, time spend on it, likes and comments, number of followers.

On social media, influencers promote their personal life, this action makes them relatable to the average consumer. According to Ledbetter (2016), influencers are unique in the sense where they are the ultimate connection between a consumer and a brand.

Influencers have a high social credibility thanks to their candidness and openness with consumer (Buyer, 2016), which is the reason of their success. Mass marketing used to target mainly mass audiences, with influencers. Today, brands can target niche audiences that were unreachable before (Ledbetter, 2016).

Now that we have a clear vision of a social media influencer, in the next section we will focus on influencers' impact on a brand

2.2. Influencers' Impact on the Brand

Targeting consumers' wants and needs has always been a challenge for brands; social media influencer's helps brands to build relationship with its key consumers. With social media influencers brands do not totally control the influencer's online conversation. There is a two-way conversation established via social media channels, when a brand promote a product through an influencer, the brand to the consumer and the influencer to the consumer (Booth & Matic, 2011).

Nowadays, using social media for brands in their communication strategy is becoming more and more important. According to Gillin, the popularity of an influencer can be explained by a range of factors. Some of these factors such as "quality content" are difficult to measure and others are highly measurable like "page views". The evolution of media platforms impacts these criteria. Moreover, other criteria used to evaluate influence include participation level, frequency of activity, and or prominence in the market community (Booth & Matic, 2011).

Regarding the influencer point of view, they work to increase relationships with their key audiences by enhancing the reputation of a brand and/or business. Their online activity can collect customers comments and feedback, and help brands to improve (Booth & Matic, 2011).

Following let us expose some interesting theories found in the literature about influencer communication.

2.3. Theories behind Influencer Communication

Bandura (1971), the social-science theorist, known for his research on people reaction in social situations wrote "In the social learning system, new patterns of behavior can be acquired through direct experience or by observing the behaviours' of others (Bandura, 1971). These words help to answer the question "why influencers are so influential". According to Bandura, based on informative feedback, consumers can develop thoughts and/or hypotheses about the types of behaviour that has the more

chance to succeed, and can decide to implement them for future actions. To resume people, need examples to learn and influencer are examples for their followers. Consumers are more likely to adopt behaviours exhibited by influencer on their social media (Forbes, 2015). Companies fall back on social media influencer, hoping that the relation existing between the consumer and the influencer will lead the consumer to adopt the influencer behaviour.

Moreover, the metric Electronic Word of Mouth (eWOM) is an interesting tool to supervise the strategies that makes social media influencer successful. The metric eWOM represent any positive or negative statement of potential, actual and/or former customer about a product, brand or company on the internet. This metric evaluates consumer's opinions about a brand or product. Knowing that word of mouth is known as one of the most credible and trusted sources of marketing, social media influencers are masters at eWOM. Influencer can impact a consumer opinion about a product or a service. Based on this last statement, it is in the influencer and the company interest to keep online conversation positive and persuade consumer to buy a product. The goal is to make feel the consumer it was his decision to buy the product or service and not the influencer. (Lee and Yuon, 2009).

Having exposed theories on influencer communication above, a few themes such as the value of a professional athlete as an influencer in the era of social media requires some deepening.

2.4. The Value of the Elite Athlete as influencer in the Era of social media

Nowadays, athlete sponsoring has evolved, the sponsored used to be an athlete of an individual sport or a team. Today, the athlete is a single person (independent of his sport or team) who "crafts" himself as a brand in which companies invest to associate their name to the image they return to people. Brands hope to influence their target customer by investing in an athlete. The agreement between the athlete and the brand is supposed to emphasis the brand value in order to increase its market performance. The

credibility of the athlete toward people will define the intangible value brought by the athlete to the brand. (Arai et al., 2014).

Recently, star athletes used their social media to “craft” their athlete brand in which companies invest, to better their performance. This transaction considered as an intangible investment, allow companies to use athlete social media as their communication system (Peters et al., 2013). Social media enables user to communicate in different ways: social networking (Facebook), microblogging (Twitter), video sharing (Instagram) (Kitetzmann et al., 2011). Social media impacts company’s communication strategy, but also permit companies to access key information, on their product by having direct feedback from their target customers (Kaplan and Haenlein, 2010; Gruber, 2015). Reputation of a brand or a company on social media can be influenced and monitored like using influencer (Agostino & Sidorova, 2017). Organization communication used to be passive and one-way, thanks to social media a two-way communication exists between customers and organizations (Zhang & Vos, 2014).

The “value” of an athlete brand can be represented by the ability of this athlete to be a credible actor in the promotion of a brand. Athletes act as influential individual users capable to impact opinions about a product or a service. (Kumar & Mirchandni, 2012).

Sport influencer marketing does not include “classical” sponsorship; it is more the hidden testimonial role of the athlete about a product that must not necessarily be linked with the sport of the athlete. Today, star athlete faces an increasing pressure to maintain their social media updated to keep and get new sponsors. Recently, the scientific literature increased the knowledge on how elite athlete can successfully exploit themselves as a brand (Burch et al., 2014) to enhance their benefits during and after their career.

In the next section we will discuss social media for the world highest paid athlete since they are the individuals at the center of our research.

2.5. World's highest paid athletes on social media

Forbes magazine publishes every year a list of the world's highest paid athletes. In 2019, Lionel Messi an Argentinian footballer who plays for the FC Barcelona in Spain was top of the list. However, Ronaldo his rival playing for the Juventus football club in Italy is the unquestionable social media leader with 216 million followers on Instagram.

In 2014 Kobe Bryant, an American professional basket player, was playing for the Los Angeles Lakers and was also top five of Forbes list. Despite the fact Bryant was close to retirement his salary was eight times higher than the average professional basketball player (Badenhausen 2014). Interestingly, Bryant takes also fifth place when it comes to social media popularity, being particularly active on social media such as Facebook, Twitter and Instagram. In comparison, Derrick Rose, a basketball player for the Chicago Bulls had similar field performance than Bryant but was eight times less active than Bryant on social media was ranked thirteen in Forbes ranking list. This fact suggests that athlete's online popularity can be considered as an asset that leads to higher salary.

Many retired star athletes use social media as a pension plan, old athletes can profit from endorsement contracts driven by an appropriate utilization of social media. Dewhurst (2015), noted that David Beckham the former English captain was the fastest ever to reach 5 million followers on Instagram in only three days.

Social media presence and awareness ensure athletes a global reach. Athletes can be compared to large corporation by using online networks to interact with their fans but also attract new ones. Sanderson (2011) stated that the role of social media in the sport business needed a better understating and more scientific research on the subject. Athlete social media strategy is not optimal yet.

Talking about social media let us present their utility when it comes to social media influencer marketing.

2.6. Three powers of social media

Kaplan & Haenlein (2010) noted that social media is a branding tool not only for large corporation but as well for any type of organization such as small and medium enterprise, non-commercial organizations, public and governmental institutions. Nevertheless Harris & Ra (2011), found out that social media is key for individuals willing to build their personal brand. Social media experts claim it is crucial to monitor online identity (Schawbel, 2009). Social media enables to publish post, tweet, and comments which may influence one's image. Professional and business image can be harmed on social media. Building an online reputation is a long-term challenge. A single twitt can undermine an image created for many years.

Scientific literature discussed different area of social media engagement and participation. Kietzmann, Hermkens, McCarthy, & Silvestre (2011) stated online social network platforms gather seven functional aeras: identity, conversations, sharing, presence relationships, reputation and groups. Kietzmann, Hermkens, McCarthy, and Silvestre (2011) identified six levels of progressive participation: viewing, forwarding, commenting creating, moderating, and arbitrating.

2.6.1. Power of informing on social media

Athlete stars must find the right balance between protecting their identity and sharing interesting content of their private live. Scholars noticed that fans demand and expect content about athlete's person lives on social media (Burch et al., 2014). In the case of athlete influencer, information about doping is the most harmful to their reputation (Ehrnborg & Rose'n, 2009). Today social media is an informal channel of private information about athletes it can be used in order to respond to unsolicited information released by journalist such as paparazzi.

2.6.2. Power of interacting on social media

Pronschinske, Groza, & Walker (2012) noted that increasing one's activity on social media has a positive influence on the number of follower and likes. According to Hopkins (2013), social media helps businesses to develop their relationships with customers. However, each platform serves different functions: on the one side Twitter is used for real-time interaction while on the other side Facebook is more optimal to provide information to enhance fans experience. Instagram function is between Twitter and Facebook. Sport professional athletes use in most of the case all three platforms. Paniagua & Sapena (2014) define Twitter as simple service for complex relationships whereas Facebook is a complex service for a simple service.

2.6.3. Power of inspiring on social media

The power of inspiring on social media specify on how followers are hyped and encouraged to undertake action in their personal lives due to social media content. Most of the content visualized by fans on social networks impacts their life decision. Demers (2014) and Rozginyi (2015) stated that visual content is the most efficient manner to reach an audience and conclude that social media is a key tool when it comes to inspire a public.

Following, a last explanation on the value of a superstar in function of their social media to close our review on this section dedicated to Social media influencer marketing.

2.7. Social media and superstars market value

According to Franck & Nüesch (2012), the concept of “superstar phenomenon” can be applied to managers, artists, and professional athletes. Scholars use two basic concepts to explain the value of superstars: the role of talent (Rosen, 1981) and the

positive network externalities of popularity (Adler, 1985). Recently studies explained that team sport players' salaries are determined by factors such as performance, number of games played, player position, contract duration, and age. Callsen-Bracker, Herm, & Kreis (2014) stated that in addition of the personal statistics the number of press citations is linked to athlete's market value.

Considering social media, the literature agrees on the fact that the role of fans on social media is key, it suggests the number of fans inform on success (Lin, Luarn, & Shih, 2014) or performance (Paniagua & Sapena, 2014).

Next section will tackle how the literature conceptualizes athlete brand equity. Findings and opinion of different searchers will help us in our knowledge path on social media, High level athletes and their endorsement revenues.

3. Conceptualization of athlete Brand Equity

To conceptualize brand equity we build this branch of our literature research using the funnel method by first exposing brand theory and step by step getting closer to athlete brand equity which is a crucial concept to understand in our paper.

3.1. Brand

The two models presented in the section above introduced the concept of brand equity. A definition of brand has not been given yet. Bennett in 1988 gave this definition of a brand, it is a name, symbol, term, design or any other feature that identifies and distinguishes a service from others. In 2008 Keller introduced brand in the market place as something that created an amount of awareness, reputation and prominence.

3.1. Brand in sport and Human Brand

Some researcher in the brand management field focused on sports and describes brand in sport as a name, design, symbol or any other characteristic able to differentiate a sport product from the competition (Shank, 1999). Later scholars started to pay attention to human brand with the concept of celebrity endorsement and identified human brand as a famous individual who is the subject of marketing communication endeavor (Thompson, 2006). Research on human brand and brand in sport concentrate on well-known athletes used as athlete brands with their personal symbolic meaning and value created by using their name, face, achievement (Arai, 2013). In the marketing field, the concept of brand equity is linked to the added value of a brand name or logo that contributes to a product or service (Aaker, 1991). Nonetheless, a part of research on the subject presented the consumer-based brand equity point of view as the impact of consumer brand knowledge in response to a brand marketing strategy (Keller, 1993).

3.2. Brand Equity

Brand equity has been studied through two approaches. First, the financial based approach, the objective is to estimate the value of a brand in terms of asset valuation (Farquhar et al., 1991; Simon and Sullivan, 1992; Keller, 1993). Second, the customer-oriented approach goal is to focus on improving marketing productivity (Keller, 1993), this approach concentrates on the relationship between customers and the brand.

Aaker (1991) and Keller (1993) developed two notable equity models. Aaker spotted five brand equity elements in his research: (a) brand awareness, (b) perceived quality, (c) brand associations, (d) brand loyalty, and (e) other proprietary brand assets. Keller on his side developed a consumer-based brand equity model that is “*the differential effect of brand knowledge on consumer response to the marketing of the brand*” (p. 2). Brand knowledge englobing brand awareness and brand image. This model is centralized on the idea that the brand resides in an individual’s mind as a cognitive construal), focusing mainly on a brand’s relation with its consumer (Aaker, 1997). Fundamentally brands equity is determined by consumer’s familiarity and knowledge of a brand determined by factors like favourability, strength, and uniqueness.

3.3. Athlete Brand Equity

Studies on celebrity endorsement bestow preference for the consumer-based brand equity point of view when it comes to athlete brand equity. Erdogan (1999) studied celebrity endorsement based on consumer’s perceptions and attitude related to celebrities and introduced different measurement models. The measurement of sport brand equity was analysed in a conceptual framework in a spectator-based brand equity view (Ross, 2006). A study on the effect of the country of origin on brand equity made by Bo (2017) considered the subject. His findings settled on a definition for brand equity: “the differential effect of consumer knowledge on consumer response to an athlete brand.” (p.16)

In 2014 Arai et al. defined athlete brand as “a public persona of an individual athlete who has established their own symbolic meaning and value using their name, face or other element in the market” (Arai et al. 2014, p98).

3.4. Brand Image, Brand Awareness and Endorsement Value.

To predict athlete brand equity, two distinct approaches can be used; a financial vision and a customer-based vision should be measured and discussed.

On the one hand, the customer-based brand equity vision relies on brand awareness and brand image, the two features that impact brand knowledge (Keller, 1993). In a sport environment, brand awareness can refer to the proximity and familiarity of one consumer with the athlete (Gladden et al, 1998). Arai et al (2014) introduces brand image as the sport consumer’s opinion about athlete brand attributes. The customer-based approach roots from Keller’s (1993) brand knowledge model. This model conceptualized brand equity in a consumer-based vision where brand knowledge is comprised of brand image and brand awareness. To resume, to measure athlete brand equity in a consumer-base point of view, brand awareness and brand image should be the two components to measure.

On the other hand, financially based athlete brand equity could be linked to the athlete financial market value. For endorsees, the opinion or estimation of the athlete brand equity impact their endorsement decision. The financial athlete brand equity value can be represented by the endorsement value of the athlete. (Farquhar et al., 1991; Simon and Sullivan, 1992)

In conclusion of the above theory, athlete brand equity is linked to variables such as brand image, brand awareness and the endorsement value of the athlete. These variables have more less impact depending on the approach (financial or consumer based).

The following section deals with measurement models of athlete equity. Even if our practical part will not try to establish a new measurement model specific to high

level athletes equity influenced by social media. We presented the following models for their value in our literature review. In our scientific reasoning the following outcomes of the models are precious information for our work.

3.5. Measurement Models of Athlete Equity

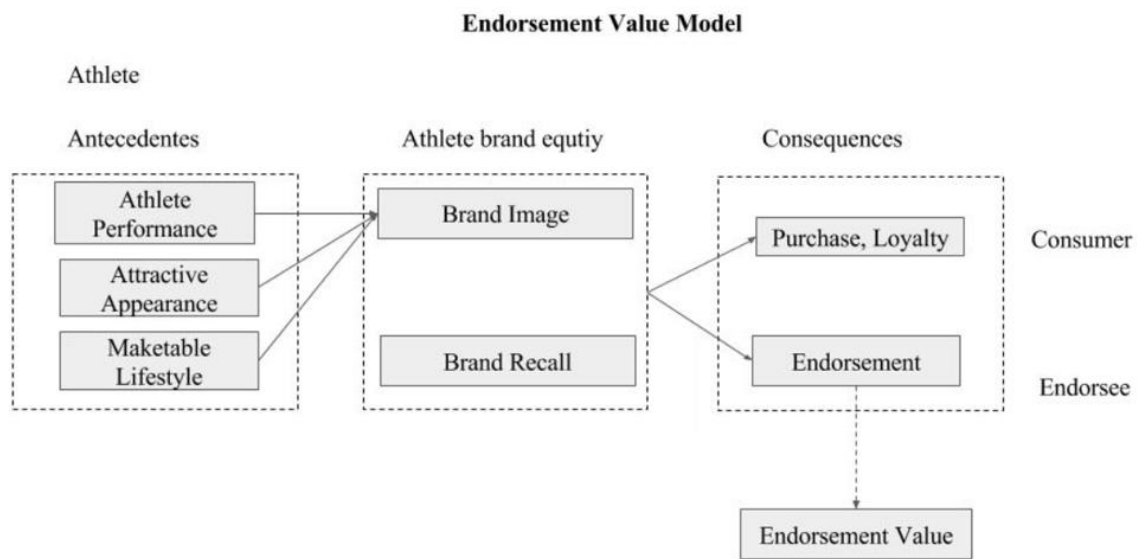


Figure 2: Endorsement Value Model. Source: Bo Yu (2017)

Aaker's and Keller's models are often adopted or adapted in sport brand equity and athlete endorsement research. Later Spry et al (2011) introduced associative network memory model using psychology and brand signalling theory in a marketing environment. These models and studies enlighten the relationship between endorser credibility and brand equity. Depending on the assumption that intangible human brands have a brand personality such as tangible brands (Carlson & Donovan, 2013).

The Conceptual Model of Athlete Identification (MAI) has been introduced by Carlson and Donovan (2013) to quantify the brand personality of athletes, considered as a non-product attribute of brand association (Keller, 1993). In 2014 Arai et al brought

modification to the MAI model and adapted it to brand image by building up a Model of Athlete Brand Image (MABI). This model implies three dimensions (athlete performance, attractive appearance and marketable lifestyle). Based on the MABI model it is possible to scale and assess an athlete brand image dimension (Arai et al, 2014).

As seen earlier brand image and brand awareness are two components of athlete brand equity, the scale of MABI helps to measure brand image by using a psychometric approach to evaluate consumer-based athlete brand equity.

In the MAI model (Carlson & Donovan, 2013) used other dimensions such as brand personality, brand prestige and brand distinctiveness. In comparison with, the MABI model (Arai et al, 2014) brand personality and brand prestige can be compared to the combination of the dimension's athlete performance and attractive appearance from the MABI model. Concerning the distinctiveness, it can be linked to the marketable lifestyle dimension of the MABI model.

3.5.1. Athlete performance

Athlete performance represents the customer evaluation of the athlete performance on-court. In their model Arai et al (2013) divided the athlete performance dimension into four sub-dimensions of performance: Athlete expertise, competition style, sportsmanship and rivalry (Arai et al, 2013). Athlete expertise represents the perception of the athlete's performances on-court by consumers. Competition style stands for the on-court playing style of the athlete. To measure expertise and competition style Carlson & Donovan (2013) used the term of success in their model. Sportsmanship includes the evaluation of the ethical behaviours of the athletes, prestige and trustworthiness were used respectively Spry et al (2011) and Carlson & Donovan (2013) model to measure the sportsmanship variable. Finally, rivalry is the competition intensity inside the competition or the sport league, the athlete is facing.

3.5.2. Attractive appearance

The Physical attractiveness is the physical validation, desirability, favourability of customers for an athlete. In the MABI model (Arai et al, 2013), attractiveness is divided into 3 sub-dimensions: attractive appearance, body fitness, and symbol. The type of athlete's body is an indication on whether his body matches his or her sport body fitness consensus. Attractive appearance answers the question: is the athlete good looking or not? Finally, symbols represent the athlete intrinsic fashion style.

3.5.3. Marketable Lifestyle

Marketable lifestyle is the third variable of the MABI model; to create Athlete equity is important for athlete to be unique on their off-court life. Distinctiveness of the athletes allow them to be seen as unique from customers. Arai et al (2013) in their model MABI divided marketable lifestyle into three sub-dimensions: life story, role model and relationship effort. Life story represents the athlete life story outside the court; this story can reveal the athlete personal value. Role models tackle the behaviour off-court: is the athlete a good example? Finally, relationship effort includes all athlete action, attitude and interaction with their fans, sponsors and media.

This last part loops our literature sub-section on Conceptualization of athlete Brand Equity. This brings us to our last part of our literature review consecrated to product endorsement. Since our problematic deals with endorsement revenue it is important for the good of our work to clarify the scientific knowledge about product endorsement

4. Product endorsement

In this last section of our scientific literature review similarly to the precedent section we adopted the funnel method by first presenting theory on professional athletes and to gradually approach theory on high level athlete's social media and product endorsement.

4.1. Media and professional athletes

Nowadays, professional sport has reached an all-time popularity which participates genuinely to raise athletes to international icons (Bradish, Lathrop, & Stevens, 2003). These athletes return an image of athletic excellence, becoming ideals in a population where sport culture is rising (Boorstin, 1992). Star athletes are comparable to a global brand (Stevens *et al.*, 2003), the synergistic and interdependent relationship between professional sport and media plays a key role in raising athlete's status to mythical (Bruce & Tini, 2008). Hence, star players appeal is a powerful tool for marketers to endorse sports or non-sport products. (Hambrick & Mahoney, 2011), their likeable and trustworthy persona can influence a consumer purchase decision (Ruihley, Runyan, & Lear, 2010). In the past decades the practice of using star athletes for product endorsement has grown, individual sport athletes as well as team sport athletes have endorsed multiple industry products and services. (Ruihley *et al.*, 2010).

To date, literature has studied numerous aspects of athlete's product endorsement. Effectiveness of athlete's endorsement (e.g., Braunstein, Trail, & Zhang, 2011; Cunningham, et al, 2012), athletes endorsement icons (Bradish, Lathrop, Stevens, & 2003), athlete-endorser image managing (e.g., Till, 2001), legal issues linked to athletes' endorsement online (e.g., Baker, Brison, & Byon, 2013; McKelvey, & Masteralexis, 2013), and endorsement through different media outlets (e.g., Braedley & O'Reilly, 2008; Ruihley *et al.*, 2010). Most of these athlete endorsement studies are based on traditional media channels, and a lack of scientific research work linked to

athlete's product endorsement centered on social media. With the exponential growth of social media's use and sport popularity it is necessary to fill the gap (Pedersen, 2014).

Before the social media rise, broadcast media was the principal communicator of athletes brands and marketing activities (Danylchuk & Lebel, 2014), but nowadays social media platforms through Twitter, Instagram or Facebook offer athletes the possibility to control how their image is presented to people. With social media, athletes can build, shape and design their own brand and marketing endeavours (Danylchuk & Lebel, 2014). By selecting well-thought videos, text messages, audio files and messages athletes (or their community manager) can control and manage their "presentation of self" (Bullingham & Vasconcelos, 2013).

In an endorsement partnership context, athlete's social media are used as a tool to transfer "symbolic meaning" to their brands partners (McCracken, 1989). A third party such as a broadcast media can be involved to engage a direct dialogue with their followers (Danylchuk & Lebel, 2014). A star athlete can communicate directly endorsements "personally" on their social media (e.g., Twitter). Many factors are susceptible to influence potential consumer's attitude toward a brand partnering with a sport personality, such as the athlete reputation, attractiveness, believability as well as the consumer personal emotional attachment to the icon. This influence is higher on followers who identify themselves with the athlete (Busler & Till, 2000). For reasons above Social media are a valuable endorsement communication channel asset.

Studies have been conducted on the subject by Hambrick & Mahoney (2011) the purpose of their work was to study the use of Twitter for promotional purposes by two professional athletes (Lance Amstrong and Serena Williams). In 2012 Cunningham and Bright's examined the relation between consumer's attitude and athlete endorsement in social media. A recent study from Abeza, et al, (2017) completed works cited above on the topic by analysing a large number of athletes and their Twitter data. They focused on active players with the highest annual revenue coming from endorsement and their utilisation of social Twitter. They found out that regulatory guidelines exist for celebrities and their use of social media platforms when it comes to endorse materially connected brands.

4.2. Celebrity product Endorsement

Celebrities are most of the time athletes, artists, politicians, businessperson... (McCracken, 1989). As reported by McCracken (1989) a celebrity endorser is someone *“who enjoys public recognition and who uses this recognition on behalf of a consumer good by appearing with it in an advertisement”* (pp. 310). Nowadays a certain amount of celebrity athlete, like Cristiano Ronaldo, Roger Federer and LeBron James use their names and image in advertising, in two different ways: celebrity license and celebrity endorsement. Celebrity license is a long-term co-branding commitment between a celebrity and a brand such as Michael Jordan and Nike. Pamar & Patel (2014), stated that celebrity license is an uncommon type of advertising while celebrity endorsement is generally employed in marketing practice.

As celebrities are perceived to enjoy an important connection with consumers (Thomson, 2006) through characteristics like reputation, likeability, believability and attractiveness (Atkin & Block, 1983), many firms invest in celebrities' athletes in order to create a connection with their brand (Carlson & Donovan, 2013). In exchange of their investment in a high-profile athletes businesses expect this link to enhance their effectiveness of persuasive communication (Bright & Cunningham, 2012); in other words, athletes positives attributes are transferred to the endorsed products and services (Carlson & Donovan, 2013). In 1984, McCracken declared, endorsers link their image to transfer their “symbolic properties” to a certain product or brand, then these qualities are transferred from the product to the consumer. This kind of marketing, celebrity endorsement, has allowed brands to deal with advertisement issues when it comes to generate brand awareness (Bright & Cunningham, 2012), and enhance product purchase behavior (Carlson & Donovan, 2013). Studies proved the impact of endorsement in increasing sales (Elberse & Verleun, 2012), build brand equity (Lukas & Seno, 2007), and impact positively stock returns (Braedley & O'Reilly, 2008).

Moreover, the existent scientific literature has investigated celebrity product endorsement through many different angles. Lukas & Seno, (2007) classified the literature into five different types that can be separated into two distinct categories:

- **Source-based**, representing qualities found in celebrity's image divided into two type, celebrity attractiveness and celebrity credibility.
- **Management-based**, consist of all component part of the management of the product endorsed, divided into three type: celebrity multiplicity, celebrity product congruency, and celebrity activation.

The five elements above help to encompass and understand literature about endorsement. However, scholars identified the different modes of endorsement (Lukas & Seno, 2007; McCracken, 1989). In line with McCracken, endorsement modes are either imperative *"You should use this product"*, implicit *"I use this product"* explicit *"I endorse this product"* or co-presentational *"merely appearing with the product"*. As an endorser a celebrity can act two ways: *"as an expert, as a spokesperson associated with a product in a long-term capacity, or as an aspirational figure with no particular knowledge of, or relationship with, product"* (Lukas & Seno, 2007, pp.122).

4.3. Professional Athletes as Endorsers

Lately, professional athletes are compared to popular culture products; being a high-level sportsman is not their only role. Today, they are considered as well as role models entertainers, and marketable commodities (Arai, & Kaplanidou, 2013). Media plays a key role in raising athletes into international icons. (Bruce & Tini, 2008). The icon stratus in addition of the perceived heroism gives a power to famous athletes called "star power" by Braunstein & Zhang (2005). Using the star power to enhance consumer purchase intention is used by several businesses; fans usually have emotional attachment with athletes in especially consumers who identify themselves with the sportsperson (Till & Busler, 2000). Today, an important number of high-level athletes are engaged in many different commercial agreements with different businesses in

exchange of financial reward. As a matter of fact, 64% of the income of the top 20 highest paid athletes comes from endorsements earnings. (Forbes, 2015).

The scientific literature covers multiples aspects of athlete's product endorsement, Braunstein et al. in 2011 studied athletes-endorsers effectiveness in promoting non-sport products. Researchers have also investigated athlete's endorsement on different media platforms. In 2010, Rauhley examined the use of star athletes in print advertising, and showed an increase in star athlete's endorsements between 1980s and 2000s. Braedley & O'Reilly (2008) analysed television coverage recordings to study the link between high level sports athletes and athletic design and proved that there is a media impact on celebrity athletes clothing. Considering the literature on athlete endorsement, most of it covered traditional media such as TV and magazines, lately social media is the new popular platform in order to communicate athlete's product endorsement with consumers.

4.4. Professional Athletes as Endorsements, and social Media

During the last decade the use of social media has grown exponentially in the sport industry (Pederson, 2014). Nowadays, social media gives the opportunity to athletes to reach a great audience worldwide, at a specific time and place and frequency. Star athletes use multiple social media platforms to engage with their fans. Knowing the actual importance of social media in the sport industry, scholars have covered an important number of topics linked to celebrity's athletes. (e.g., Burch et al, 2012; Greenhalgh, et al, 2010; Kassing & Sanderson, 2010; Danylchuk & Lebel, 2014; Pegoraro, 2010). Studies above showed that professional athletes use twitter in order to provide information on their personal lives and on their team and sport. With Twitter and by extension social media, athletes can communicate different type of information linked to sport and non-sports subjects empowering their exposure and increasing their visibility to fans.

The universality, the important reach and the worldwide acceptance of social media platforms in the sport industry (Pedersen, 2014) has contributed to the growth of

product endorsement contracts between star athletes and corporates. (McKelvey and Masteralexis,

2013). Professional athletes have such an important persuasive power on their fans, marketers through athletes endorsers and their social media can reach potential consumers. Twitter in the sport industry is a widely embraced platform. Twitter, Instagram Facebook ... particularity is the control power granted to users on how their image is presented to other. Social media platforms are used by athletes as a self-controlled channel to promote their own brand (Danylchuk & Lebel, 2014).

Many factors explain social media force, easy accessibility, contact availability, connectedness, participation, simplicity, interact with groups of shared interest, real-time information exchange and many other features make social media unique (Abeza, et al, 2015). Platforms allow users to create, learn, listen, contribute, share experiences and interests instantaneously and in parallel comment their network. Hambrick & Mahoney wrote in 2011 that social media grant to fans the opportunity to learn more about and interact directly athletes. Social media allows user to select strategically their personal presentation, photos, audio and video content (Bullingham & Vasconcelos, 2013). In the sport industry it is common that celebrities' athletes delegate social media management to an assistant called a community manager or a public relation company. This practice allows star athletes to shape their platform in a manner that suits their desire.

Scholars as Bright & Cunningham in 2012 examined consumer's attitude when it comes to athlete endorsements on Twitter, they concluded on four influential endorsements attributes: source attractiveness, trustworthiness, expertise and congruence. The authors stated that the consumers attitude toward athletes were positively impacted by the four endorsements attributed seen above. Similar studies (e.g., Pronschinske et al., 2012; Lim, et al, 2012), participated to the understanding of fans attitude towards their interaction on social media. (Lim et al, 2012) declared that Twitter is a useful platform where a relationship with fans can be strengthen; Groza et al, (2012) established that fans vigorously look for engagement when it comes to a sport team marketing effort; Chinn, et al, (2014) proved the influence of team identification on

how much a community values specific category of sports Tweets (news, opinion, and promotion). In parallel Meng, Stavros & Westberg (2015) and Chinn et al, (2012) underlined social media strength. Indeed, social media through their personalized and humanized communication possibility enhance fans relationship with their favourite athlete and/or sport entity.

Twitter is a social media allowing athletes to communicate and present themselves to their followers by using different features and tools accessible on the platform. These features and tools permit athletes to communicate product endorsement on their official accounts. Nonetheless, the brands practical to use athlete's social media to endorse their products have been pointed out by the law since 2009. For instance, in the United States and in the United Kingdom regulation have been introduced by respectively the Federal trade Commission (FTC) and the Advertising Standards Authority (ASA). These regulations require advertisers to be transparent on their role and impact on online advertisement. (Brison *et al.*, 2013; McKelvey & Masteralexis, 2013). In 2009 the FTC presented its guidelines regarding advertisement on blogs and social media. One of the guidelines stated that endorsers must disclose their material connection, for example paid or sponsored with thee endorsed brand (McKelvey & Masteralexis, 2013). These guidelines as declared by McKelvey and Masteralexis exist to allow the consumers to be informed when they are subjected to brand promotions, in order to respect their rights. Consumer protection is the core subject of these guidelines, they were created to inform and prevent consumer to be misled by promotional tweets and postings. Depending on the FTC recommendations, endorsers should us tags such as #spon, #paid, or #ad to distinguish athlete's personal opinions and paid endorsements to allow fans to make an informed choice about brands (Brison *et al.*, 2013; Bright & Cunningham &, 2012). Nevertheless, the regulations are not clear for example the FTC do not require a disclosure in cases followers are aware that athletes are paid endorsers for the brand.

Similarly to the section about the conceptualization of brand equity we decided to present models to finalise this section on product endorsement. Once again these

models are here to help us having a better understanding on the functioning of online endorsement. Our practical part is not about building a new endorsement model. The following is a precious asset in our research since it enlarge our knowledge on the role of social media, in this case Twitter, in endorsement.

4.5. Endorsement Model

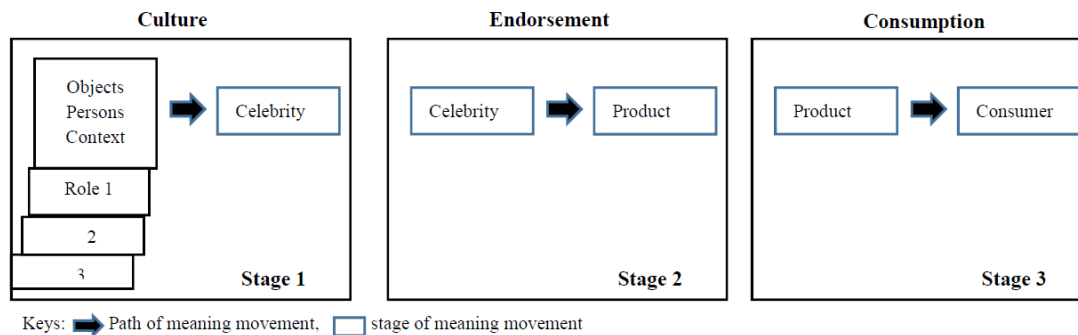
Celebrity product endorsement has been studied in many different perspectives by scholars counting schema theory, attribution theory social adaptation theory, and associative learning (Till, 2001). Numerous models like source attractiveness (of McGuire, 1985) source credibility (Hovland & Weiss, 1951), matchup hypothesis (celebrity-product congruence), elaboration likelihood model, and meaning transfer model (McCracken, 1989) helped to clarify distinct aspects of celebrity endorsement.

One the one hand, the meaning transfer model spotlights the method of passing on culturally acquired perceived qualities of stars onto a brand, on the other hand, other theories and models guide the analysis of the nearness of a brand with endorser qualities (e;g;, likeability, attractiveness, trustworthiness).

The McCracken's meaning transfer model helps understanding the different practice of the highest paid athletes when it comes to "meaning transfer" in endorsing products through their personal presentation on a self-controlled communication such as Twitter. McCracken's (1989) meaning transfer model underling the fact that celebrities bear a culturally constructed individualized meaning (through their status, class, gender, age, personality and lifestyle), and by endorsing a brand there are transferring a culturally acquired meaning onto the brand. The expectation from this meaning transfer on the brand is to impact positively the image of the brand in consumers mind. McCracken meaning transfer model is a three-stage process (figure 1), it explains how the transfer of cultural meaning of star athletes on the endorsed brand can impact positively one consumer attitude toward the brand.

The first stage of the model represents the acquisition of the cultural meaning of the celebrity due to their public role. In the second stage, the cultural meaning is

inculcated to a brand that being endorsed through a given channel of communication.



Finally, the third stage is the favourable attitude of consumers toward endorsed brand.

Figure 3: Meaning movement and the endorsement process model. Source: McCracken (1989)

A thesis from Bo (2017) on celebrity athlete's product endorsement (whether paid or unpaid), focusing on the Twitter content of actual athletes with the highest annual endorsement's income explains how Twitter plays an important role in the field of product endorsement for corporates and professional athletes. Twitter provides a compliment and/or supplement to the offline traditional communication channels. Moreover, Twitter as a self-controlled communication medium provides to athletes a platform to build their own individual brands and promote their personal marketing endeavours.

Athletes, by using Twitter in an efficient manner, can increase their earning power from endorsement deals. Abeza, et al (2017), came with an update of the McCracken model that fits an online context. This model includes the paths and stages of the McCracken model about product endorsement meaning transfer when using Twitter as a communication channel. The framework provides celebrity athletes hints on what strategy to adopt when it comes to endorsement roles, Tweet types, content types, endorsement modes.

Results from the research from Abeza, et al (2017), showed that the medium used by celebrities to transfer their symbolic qualities is an important factor. As mentioned in

the paper, Twitter is a powerful product endorsement communication medium. Many factors explain Twitter's force such as endorsement communication being "personally" communicated to fans, athlete's reputation, likeability, believability, attractiveness, trustworthy persona, and emotional attachment can all influence consumers attitude without the bias of important endorsement campaigns.

This final section on product endorsement models is the last piece of our literature review. In this review we covered an important amount of concepts, definition, scientific visons, and models that will serve us in the scope of our thesis practical part. Based on our literature review let us introduce the next part of this thesis exposing our hypothesis.

Part 2: Hypotheses

Now that we have a clear view of the scientific literature on topics that touch our subject namely, high level athlete social media and its influence in their endorsement revenue. We can, based on our findings, place our hypothesis. Each hypothesis is testing high level athlete's social media aspect that could possibly influence their endorsement revenue.

1. H1: The more follower an athlete has on social media the higher are his endorsement revenue

The goal with this hypothesis will be to understand the correlation between the amounts of fans/follower a high-level athlete and is endorsement revenue. We will test whether the correlation is indeed positive, and to what extent it impacts athlete endorsement revenue. We know that popularity of an athlete is linked to his performance which leads to endorsement contracts. Therefore, we hypothesis that social media popularity will lead to higher endorsement revenue. The number one social media metric that picture popularity is the amount of follower.

2. H2: The higher an athlete engagement rate on social media, the higher are his endorsement revenue

Concerning this hypothesis, we want to test the importance of the public reception on social media and its impact endorsement revenue. The positive reception of an online post can be measured with the number of likes and comments induced by the post. To test social media reception, we will measure the athlete activity on social media by considering the engagement rate of each athlete on our list. Our Hypothesis is that the higher the engagement rate on an athlete social media page; the higher are his endorsements revenues. This hypothesis echoes the literature affirming that a high reception on social media fosters endorsement contracts for high level athletes.

3. H3: To maximise their endorsement revenue High level athletes should be present on Twitter, Instagram and Facebook

After testing the first two hypotheses about the importance of popularity and effective reception on an athlete social media, we want to test the importance of being active for high level athletes on a maximum social media channels. Based on the literature, when it comes to influencing, the most popular and important social media to manage for high level athletes are Twitter, Instagram and Facebook. To test this hypothesis we will verify if athletes in our database present on Twitter, Instagram and Facebook tend to have higher endorsements revenues than athletes not present on all 3 social media.

4. H4: Among Instagram, Facebook and Twitter Instagram is the social media that fits the best high level athletes demand regarding their promotion.

With this final hypothesis we want to test determine the social media among Twitter, Instagram and Facebook that suits the most high level athletes for their promotion. Based on our first part, Instagram seemed to be the perfect channel for special influencer like high level athletes. The precedent Hypotheses search to prove that to higher endorsement revenues being present on a maximum of social media is a benefit for athletes. Here the goal is to determine which social media is the best for high level athlete promotion supposing athletes could only choose one.

Part 3: Empirical Study

1. Preamble

Before starting the final part of our work, we need to add some theory to our first part on social media. As discussed above, in the Part 2 of this paper consecrated to the hypothesis, we will focus our research and work on 3 social media: Twitter, Instagram, and Facebook. We chose to concentrate on these last 3 social media based on our findings in the theoretical part. Below we will give useful information on Twitter, Instagram and Facebook based on two articles. First article deals about advertisement on social media written by Nuseir M. T. (2020) and the second tackles the use and gratification of social media written by Alhabash, et al. (2019) Both articles have interesting and recent information on Twitter, Instagram and Facebook.

1.1 Twitter

Twitter is one of the world most popular microblogging sites; currently this social media has 321 million active followers. Twitter allows individuals to read and post tweets with character limit set to 280. Twitter is used in an everyday basis for information sharing, social interaction, information seeking, content, mobilization and technology gratification. Twitter is used around the world to spread and follow important people, news and developments. Different features exist on Twitter such as retweets, replies, likes.

1.2 Instagram

Instagram has 1 billion active users. Due to its popularity among teenagers and young adults Instagram is the fastest growing social media. This social media allows users to publish photos with filters. Recently it has permitted live broadcast and story creation. This platform can be used for many different motivations such as

entertainment, convenience, self-expression, medium appeal, interpersonal interaction, surveillance, documentation, coolness, creativity, and star following.

1.3 Facebook

Facebook is the most popular social media in the world with around 2.6 billion users. Facebook gather user of all ages. At its start, Facebook was launch to connect with old friends by sharing pictures, videos commenting, updating status, private messaging, tagging. Today various activities are possible on the platform such as event planning, gaming, and gambling. Facebook has created a marketplace for their users.

2. Methodology

The methodology implemented in our practical part is inspired from the following scientific articles encountered during our literature review.

In 2015 Korzynski & Paniagua published "Score a tweet and post a goal: Social media recipes for sports stars". This article provides guidelines for stars and managers in order to deal with their social media. They based their study on a qualitative comparative analysis on a sample of 95 top European footballers using their Twitter and Facebook metrics public information. To test their hypothesis they resorted to simple regression analysis models using the age as a control variable.

The 2017 article "The world's highest-paid athletes, product endorsement, and Twitter" by Abeza, & al studied the practice of celebrity athletes product endorsement in the context of social media. They established their work by analysing the Twitter of 17 of the highest-paid athletes over a time period. They based their athlete selection on Forbes annual top 100 highest-paid athletes ranking. To test their hypothesis they applied different statistical test to the data they collected.

Finally a thesis "The Moderating Effect of Country of Origin on Athlete Brand Equity" written by Bo in 2017 at the University of Mexico search to establish the link

between the country of origin of an athlete and his equity value. To do so, he based his study on a qualitative comparative analysis based on the endorsement revenue (retrieved in the Forbes top 100 highest paid athlete ranking) and country of origin of high-level athletes. To test his hypothesis he collected his data on Forbes top 100, he applied different statistical test to his database with the help of the software SPSS. Yu, Bo build up different simple regression models using endorsement revenue as the variable to be explained.

Inspired by the different research enumerated above we applied a similar methodology to test our hypothesis. The methodology was adapted to the specificity of our subject.

In this part we will describe the database we worked on and used as a support for our statistical tests. The methodology of our analysis will be explained in detail.

2.1. The database

To help us answer our research question about the social media impact, we filled in a pre-existing database. The primary database is the famous Forbes annual ranking list of the highest paid athletes in the world. The Forbes ranking used is the latest available to date. We then completed the database with social media information about each athlete on the list.

2.2. The database structure

The primary database includes the data of the 100 world highest-paid athletes. This database includes 5 indicators. The first indicator is the name of the athlete, the second is the total pay received by the athlete during 2019. The third entry of the database is the salary of the athlete during 2019, for individual sport such as tennis; salary represents the winnings during 2019 tournaments. The fourth entry is the athlete endorsement revenue during the year 2019. Finally the last indicator in Forbes database

is the sport played by the athlete. We note that the second entry, the total pay is the addition of the athlete salary and endorsement revenue.

We then completed the database with social media-oriented data. We extracted the data from Phlanx an online marketing platform used to measure engagement rates, contact influencers, create contracts and audit social media accounts.

2.3. Description of the database

2.3.1. *Indicators/information included in the initial database*

The initial database (Cf – Appendix 1) counted 5 indicators from the top 100 Forbes ranking presented as follow:

Name	Name of the Athlete
Pay	Total revenue of the Athlete during 2019
Salary/Winnings	2019 salary and /or winnings linked to the athlete sportive performance during the year 2019
Endorsements	Revenue of the athlete linked to endorsement during the year 2019
Sport	Type of sport played by the athlete

2.3.2. *Indicators added from the initial database*

The data added (Cf – Appendix 2, 3 & 4) from Phlanx are metrics coming directly from athlete's social media. They were extracted with the help of the Phlanx platform. We added 15 social media-oriented metrics.

Followers_T	Number of followers on Twitter
Likes_T	Average like by publication on Twitter
Comments_T	Average comments by publication on Twitter
Engagement Rate_T	Engagement rate on Twitter
Est. Cost_T	Estimate cost by publication on Twitter
Followers_I	Number of followers on Instagram
Likes_I	Average like by publication on Instagram
Comments_I	Average comments by publication on Instagram
Engagement Rate_I	Engagement rate on Instagram
Est. Cost_I	Estimate cost by publication on Instagram
Followers_F	Number of followers on Facebook
Likes_F	Average like by publication on Facebook
Comments_F	Average comments by publication on Facebook
Engagement Rate_F	Engagement rate on Facebook
Est. Cost_F	Estimate cost by publication on Facebook

2.4. Choice of the method

In this part we will explain why we completed our database with the variables presented above. As a reminder the goal of this paper is to put the light on the link between an athlete social media and his revenue.

In our methodology we will accept the hypothesis that an athlete salary or winnings are only based on their sport performance. This previous hypothesis is always true for individual sports but only partly true for team sports, indeed, salary of an athlete can be influenced by his popularity and by extension by his social media popularity. For example, the amount of jersey a football player is expected to sell due to his popularity is taken into consideration in the determination of their salary. In this

paper to facilitate our predictions we will accept that salary is only based on sport performance.

2.4.1. *Explained variable*

In the initial database, coming from the Forbes top 100 highest-paid athlete, 3 variables give us information about the athlete revenue. The variable *Salary/Winnings* represent the athlete 2019 salary. The variable *Endorsement* is the athlete revenue linked to endorsement during the year 2019. Finally, the variable *Pay* is the addition of the variable *Salary/Winnings* and *Pay*. As seen above the variable *Salary/Winnings* is driven by the Athlete performance. The variable that interests us the most in this paper is the *Endorsement* variable. The goal of our practical part is to show how social media affect athlete revenue. Social media do not influence the salary or winnings of the athlete; they can only impact their endorsement. The variable *Endorsement* of our initial database is our variable to be explained.

2.4.2. *Explicative variable*

Based on the theoretical part and a study on influencer marketing of Gräve and Greff published in 2018, we decided to focus our research on the three most popular social media in term of influence power: Twitter, Facebook and Instagram. These platforms comprise a large number of users and are seen as highly relevant in influencer marketing. To explain our *Endorsement* variable, we had to gather information on each athlete social media of our primary database. As seen above with the help of Phlanx, we were able to extract crucial social media related data on athlete's part of the initial database. In 2018 Gräve and Greff published a study about evaluating success with social media oriented metrics. In the following we present the social media metrics we decided to use in our statistical model due to their relevance based on Gräve and Greff study, to explain our *Endorsement* variable. Note that for each three (Twitter, Facebook

and Instagram) social media studied we integrated the following 5 social media metrics to our database.

2.4.3. Number of followers

The number of follower is the basic metric used to analyse the awareness of an influencer. This metric is easy to track and the information about this metric is in free access on Twitter, Facebook and Instagram.

2.4.4. Average like by publication

The average like by publication is an engagement metric, it represents the number of people interacting with a content. Likes are as the number of follower in free access on social media. The average represents the average like received by an individual on all his social media content. To monitor social media success, the average likes by publication rate is better to track likes without any context. To track it we divide the average like received by an influencer by the the total number of follower.

$$\frac{\text{Total Likes}}{\text{Total followers}} \times 100 = \text{Average like rate percent}$$

2.4.5. Average comments by publication

The average comments by publication is similarly to the average like an engagement metric, it represents the average number of comment an influencer generate on his post. As for the precedent metrics presented they are available to all on individual social media. To monitor social media success, the average comments by publication rate is better to track comments without any context. To track it we divide the we divide the average comments received by an individual by the total number of follower.

$$\frac{\text{Total Comments}}{\text{Total followers}} \times 100 = \text{Average comment rate percent}$$

2.4.6. *Engagement Rate*

The engagement rate is the amount of engagement actions a post enjoys relative to the number of followers. It is a crucial metric since it shows how much your content resonate with the audience. To track the average engagement rate of an individual, the first step is to add up the average amount of like and comments an individual receives. The second step is to divide the total amount by the number of followers and to multiply by 100.

$$\frac{\text{Total Likes} + \text{Total Comments}}{\text{Total followers}} \times 100 = \text{Average Engagement rate percent}$$

2.4.7. *Estimate cost by publication*

Finally, the estimate cost by publication represent according to Phlanx the approximation cost for a marketer to sponsor an influencers post. As the method of calculation of this variable is not disclosed by Phlanx we looked up for information on how Phlanx calculated it. WebFx a digital marketing expert published the article Influencer marketing: How much does it cost in 2020 ? The article gave information on how much an influencer charges on average on the three social medias of our interest. According to the article,

On Facebook an influencer charges an average of \$25 per post per 1000 of followers. On Instagram an influencer charges an average of \$10 per post per 1000 of followers. On Twitter an influencer charges an average of \$2 per post per 1000 of followers.

We compared the estimate cost by publication generated by Phlanx to the estimate cost by publication based on the method above. We found out that Phlanx do not differentiate social medias when it comes to estimate cost per 1000 of followers, Instagram, Facebook and Twitter cost 7\$ per post per 1000 of followers for marketers.

\$	Estimate cost per post per 1000 of followers PHLANX	Estimate cost per post per 1000 of followers WebFX
Twitter	7,00	2,00
Instagram	7,00	10,00
Facebook	7,00	25,00

The WebFX method being more precise we decided to replace the variable *Est. Cost* representing the estimate cost by publication extracted on Phlanx by a new estimated cost by publication calculated with the WebEx method.

As we did not use the estimate cost by publication in our practical part this section is only present for informational purposes only.

3. Hypothesis Test

3.1. *Test H1: The more follower an athlete has on social media the higher are his endorsement revenue*

The purpose here is to verify that endorsement revenue is linked to popularity. According to the literature the more an athlete is popular the higher are his endorsement revenues. To test this hypothesis, we will use a linear regression between the dependent variable “Endorsements” and the independent variable “Followers”. We will test this hypothesis for Facebook, Instagram and Twitter meaning we will have a three different models, one for each social media studied.

We will as well include a control variable, which is not of our primary interest for the hypothesis. Nevertheless, this variable is expected to have a significant impact on athlete endorsement revenue. We will include the age of the athlete as a control variable.

3.1.1. *H1a: The more follower an athlete has on Twitter the higher are his endorsement revenue*

Model Summary

```
Call:
lm(formula = Top100$Endorsements ~ Top100$Age + Top100$Followers_T)

Residuals:
    Min       1Q   Median       3Q      Max
-22.913  -7.208  -3.711   2.978  65.594

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)   -1.919e+01  1.007e+01  -1.906  0.06044 .
Top100$Age      8.550e-01  3.141e-01   2.722  0.00802 **
Top100$Followers_T 5.583e-07  1.184e-07   4.716 1.05e-05 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 13.36 on 77 degrees of freedom
Multiple R-squared:  0.2939,    Adjusted R-squared:  0.2756
F-statistic: 16.03 on 2 and 77 DF,  p-value: 1.515e-06
```

The table above has many take-home messages:

- First, the P-value of the model is of 1.5×10^{-6} which is inferior to 5%, meaning that we can reject the null hypothesis that the model R^2 is equal to 0.
- The impacts of the variables on the model are all statistically significant since their P-value is inferior to 5%.
- Since the standardized coefficients beta for the variables “Age” and the number of followers on Twitter (“Followers_T”) are positive, the higher the number of followers on Twitter and the oldest are the athletes, the higher are the endorsement revenue of the athlete. The variable “Age” and “Followers_T” are positively correlated to the athlete’s endorsement revenue.

The adjusted R^2 value is of 0.276; this implies that 27.6% of the endorsement revenue is explained by the number of follower on Twitter and the age of the athlete.

Our regression model for H1a is the following:

$\text{Endorsements} = -19.1 + 0.9 * \text{Age} + 5.6 * 10^{-7} * \text{Followers}_T$

The regression model above explains how endorsements revenue for athletes will grow if their number of followers on Twitter increase. The age of the athlete has as well an impact on revenue, in this model the oldest are the athlete the higher are their endorsement revenue.

In conclusion, we can say that H1a has been statistically confirmed. The more followers an athlete has on Twitter the higher are his endorsement revenue. As seen with the control variable “Age”, other variables are statistically significant. Next

hypothesis will test the significance of other variables but below we will test the same hypothesis with another social media, Instagram.

3.1.2. H1b: The more follower an athlete has on Instagram the higher are his endorsement revenue

Model Summary

```
Call:
lm(formula = Top100$Endorsements ~ Top100$Age + Top100$Followers_I)

Residuals:
    Min       1Q   Median       3Q      Max
-16.726  -7.898  -3.412   2.180  69.381

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)   -2.345e+01  1.039e+01  -2.257  0.02683 *
Top100$Age      1.017e+00  3.216e-01   3.162  0.00225 **
Top100$Followers_I 1.870e-07  4.526e-08   4.131  9.1e-05 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 13.73 on 77 degrees of freedom
Multiple R-squared:  0.2551,    Adjusted R-squared:  0.2357
F-statistic: 13.18 on 2 and 77 DF,  p-value: 1.193e-05
```

The table above has many take-home messages:

- Firstly, the P-value of the model is of 1.2×10^{-5} which is inferior to 5%, meaning that we can reject the null hypothesis that the model R^2 is equal to 0.
- The impacts of the variables on the model are all statistically significant since their P-value is inferior to 5%.
- Since the standardized coefficients beta for the variables "Age" and the number of followers on Instagram ("Followers_I") are positive, the higher the number of followers on Instagram and the oldest are the athletes, the higher

are the endorsement revenue of the athlete. The variable “Age” and “Followers_I” are positively correlated to the athlete’s endorsement revenue.

The adjusted R² value is of 0.236; this implies that 23.6% of the endorsement revenue is explained by the number of follower on Instagram and the age of the athlete.

Our regression model for H1b is the following:

$$\text{Endorsements} = -23.5 + 1 * \text{Age} + 1.9 * 10^{-7} * \text{Followers}_I$$

The regression model above explains how endorsements revenue for athletes will grow if their number of followers on Instagram increase. The age of the athlete has as well an impact on revenue, in this model the oldest are the athlete the higher are their endorsement revenue.

In essence, we can say that H1b has been statistically confirmed. The more followers an athlete has on Instagram the higher are his endorsement revenue. Next we will test the same hypothesis but with the last social media which holds our attention in this paper, Facebook.

3.1.3. *H1c: The more follower an athlete has on Facebook the higher are his endorsement revenue*

Model Summary

```
Call:
lm(formula = Top100$Endorsements ~ Top100$Age + Top100$Followers_F)

Residuals:
    Min       1Q   Median       3Q      Max
-19.403  -7.927  -3.433   3.421  66.522

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  -1.915e+01  1.045e+01  -1.833  0.070633 .
Top100$Age      8.893e-01  3.255e-01   2.732  0.007801 **
Top100$Followers_F 3.257e-07  8.344e-08   3.903  0.000202 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 13.86 on 77 degrees of freedom
Multiple R-squared:  0.2403,    Adjusted R-squared:  0.2205
F-statistic: 12.18 on 2 and 77 DF,  p-value: 2.542e-05
```

The table above has many take-home messages:

- First, the P-value of the model is of 2.5×10^{-5} which is inferior to 5%, meaning that we can reject the null hypothesis that the model R^2 is equal to 0.
- The impacts of the variables on the model are all statistically significant since their P-value is inferior to 5%.
- Since the standardized coefficients beta for the variables "Age" and the number of followers on Facebook("Followers_F") are positive, the higher the number of followers on Facebook and the oldest are the athletes are the higher are the endorsement revenue. The variable "Age" and "Followers_F" are positively correlated to with the athlete's endorsement revenue.

The adjusted R^2 value is of 0.221; this implies that 22.1% of the endorsement revenue is explained by the number of follower on Facebook and the age of the athlete.

Our regression model for H1c is the following:

$$\text{Endorsements} = -19.2 + 0.9 * \text{Age} + 3.3 * 10^{-7} * \text{Followers}_F$$

The regression model above explains how endorsements revenue for athletes will grow if their number of followers on Facebook increase. The age of the athlete has as well an impact on revenue, in this model the oldest are the athlete the higher are their endorsement revenue.

In essence, we can say that H1c has been statistically confirmed. The more followers an athlete has on Facebook the higher are his endorsement revenue. As seen with the control variable “Age”, other variables are statistically significant. Next hypothesis will test the significance of the social media activity of athlete to determine their endorsement revenue.

3.1.4. *Summary of H1 and discussion*

We tested three different models on the relation between athlete endorsement revenue and their popularity on social media. Each model testing the hypothesis for one of the three social media studied in this paper. The result of our test confirmed our hypothesis that the more followers an athlete has the higher are his endorsement revenue, and this affirmation is true for all three social media analysed Twitter, Facebook, Instagram.

The relationship between the amount of followers and the endorsement is intuitive; it is understandable for athletes to get higher endorsement contracts the more popular they are. As seen in the literature review popularity is an endorsement revenue driver, and popularity is translated by the number of followers on social media. Results show that popularity on all three social media platform Twitter, Instagram and Facebook has a significant impact on endorsement revenue. Later in this paper we will try to find out if one of the three social media studied in our paper is more important than the two other.

After testing the significance of social media popularity metric in the endorsement revenue determination, let us test the importance of an athlete social media activity. The next hypothesis will test the correlation between athletes engagement rate on their social media and their endorsement revenue.

3.2. H2: *The higher the engagement rate on social media of an athlete is the higher are his endorsement revenue*

Similarly, to the first hypothesis tested, the purpose here is to enlighten the relation between athlete endorsement revenue and the activity on an athlete social media. In the literature we saw that, the more active a person is on social media, the more popular this person will be. We proved above that social media popularity drives athlete endorsement revenue. In this section we will test the affirmation the higher the engagement rates on an athlete social media the higher his endorsement revenue.

To test this hypothesis, we will use a linear regression between the dependant variable “Endorsement” and the independent variable “Engagement Rate”. We will test this hypothesis for Facebook, Instagram and Twitter meaning we will have a three different models, one for each social media studied.

We will as well include a control variable, which is not of our primary interest for the hypothesis. Nevertheless, this variable is expected to have a significant impact on athlete endorsement revenue. We will include the age of the athlete as a control variable.

3.2.1. H2a: The higher the engagement rate of an athlete is on Twitter the higher are his endorsement revenue

Model Summary

```
Call:
lm(formula = Top100$Endorsements ~ Top100$Age + Top100$`Engagement Rate_T`)

Residuals:
    Min       1Q   Median       3Q      Max
-18.845  -9.257  -4.911   4.134  68.069

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)    -18.7314    11.5388  -1.623  0.10860
Top100$Age         0.9658     0.3561   2.712  0.00824 **
Top100$`Engagement Rate_T` -44.1286    93.1397  -0.474  0.63699
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 15.15 on 77 degrees of freedom
Multiple R-squared:  0.09262,    Adjusted R-squared:  0.06905
F-statistic: 3.93 on 2 and 77 DF,  p-value: 0.02371
```

The table above has many take-home messages:

- The goal of our model was to prove the relation between the engagement rate on athlete Twitter and their endorsement revenue, P-value of the model is inferior to 5%, meaning we can reject the null hypothesis that the model R^2 is equal to 0.
- The only variable with an impact on the model that is statistically significant is the control variable “Age” since it is the only variable with a P-value inferior to 5%.
- Since the impact of the “Engagement Rate_T” variable on the model is not significant due to a P-value = 0.637, this variable is not necessary in our regression model.

The adjusted R^2 value is of 0.069; this implies that only 6.9% of the endorsement revenue is explained by the engagement rate on Twitter and the age of the athlete. The R^2 is low which means the model does not fit ideally the data.

In conclusion we cannot statistically confirm H1a, athlete Twitter engagement rate is not linked to their endorsement revenue. Below we will test the same model but for another social media, Instagram.

3.2.2. H2b: The higher the engagement rate of an athlete is on Instagram the higher are his endorsement revenue

Model Summary

```
Call:
lm(formula = Top100$Endorsements ~ Top100$Age + Top100$`Engagement Rate_I`)

Residuals:
    Min       1Q   Median       3Q      Max
-19.644  -9.652  -4.573   4.594  67.788

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)    -20.202     11.6377  -1.736  0.08658 .
Top100$Age       0.9830      0.3552   2.768  0.00707 **
Top100$`Engagement Rate_I` 19.3330     62.5622   0.309  0.75814
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 15.16 on 77 degrees of freedom
Multiple R-squared:  0.0911,    Adjusted R-squared:  0.06749
F-statistic: 3.859 on 2 and 77 DF,  p-value: 0.02528
```

The table above has many take-home messages:

- The goal of our model was to prove the relation between the engagement rate on athlete Instagram and their endorsement revenue, P-value of the model is

inferior to 5%, meaning we can reject the null hypothesis that the model R^2 is equal to 0.

- The only variable with an impact on the model that is statistically significant is the control variable “Age” since it is the only variable with a P-value inferior to 5%.
- Since the impact of the “Engagement Rate_I” variable on the model is not significant due to a P-value = 0.758, this variable is not necessary in our regression model.

The adjusted R^2 value is of 0.067; this implies that only 6.7% of the endorsement revenue is explained by the engagement rate on Instagram and the age of the athlete. The R^2 is low which means the model does not fit ideally the data.

In conclusion we cannot statistically confirm H1a, athlete Instagram engagement rate is not linked to their endorsement revenue. Below we will test the same model but for another social media, Facebook.

3.2.3. H2c: The higher the engagement rate of an athlete is on Facebook the higher are his endorsement revenue

Model Summary

```
Call:
lm(formula = Top100$Endorsements ~ Top100$Age + Top100$`Engagement Rate_F`)

Residuals:
    Min       1Q   Median       3Q      Max
-19.135  -9.890  -4.846   4.761  68.932

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)   -16.5567    11.6539  -1.421   0.1594
Top100$Age       0.9324     0.3551   2.625   0.0104 *
Top100$`Engagement Rate_F` -225.5839    203.1803  -1.110   0.2703
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 15.05 on 77 degrees of freedom
Multiple R-squared:  0.1043,    Adjusted R-squared:  0.08105
F-statistic: 4.484 on 2 and 77 DF,  p-value: 0.01439
```

The table above has many take-home messages:

- The goal of our model was to prove the relation between the engagement rate on athlete Facebook and their endorsement revenue, P-value of the model is inferior to 5%, meaning we can reject the null hypothesis that the model R^2 is equal to 0.
- The only variable with an impact on the model that is statistically significant is the control variable “Age” since it is the only variable with a P-value inferior to 5%.
- Since the impact of the “Engagement Rate_F” variable on the model is not significant due to a P-value = 0.270, this variable is not necessary in our regression model.

The adjusted R^2 value is of 0.081; this implies that only 8.1% of the endorsement revenue is explained by the engagement rate on Twitter and the age of the athlete. The R^2 is low which means the model does not fit ideally the data.

In conclusion we cannot statistically confirm H1a, athlete Facebook engagement rate is not linked to their endorsement revenue.

3.2.4. Summary of H2 and discussion

We tested three different models on the relation between athlete endorsement revenue and their engagement rate on social media. Each model testing the hypothesis for one of the three social media studied in this paper. The result of our test did not confirmed our hypothesis that the higher the engagement rate of an athlete on social media the higher are his endorsement revenue. The hypothesis cannot be confirmed for any of the social media tested. Based on our database, the Twitter, Instagram and

Facebook engagement rate of high level athletes is not correlated to endorsement revenue.

The relationship between the engagement rate and athlete's endorsement revenue seemed to be intuitive; it seems logical for athletes to get higher endorsement contracts the higher their engagement rate on their social media. A high engagement rate signifies that the influencer reaches an important part of their community. As seen in the first part of this paper the more reach an influencer gets, the higher are his endorsement contracts. Based on the result of our research this last affirmation does not apply to high level athletes. By rejecting our last hypothesis, we proved that high level athlete's in our database are not regular influencers. Their popularity confers them a superstar statue, which allows them to get juicy endorsement revenue without having to promote their self as a lambda persona.

Engagement rate is a crucial metric since it resonates how receptive is your audience to your content. A reason that can explain why the engagement rate of the athlete's part of our database does not impact their endorsement revenue is their popularity. On the one hand, even if their engagement rate reach more less 2% they still manage to reach hundreds of thousands persona which is gold for an endorser. On the other hand, a "regular" influencer with a 2% rate will reach hundreds persona, which is a very few in comparison with the superstar's part of our database. Based on our results and the theoretical part of this paper we can assume that the engagement rate of an influencer has an impact on influencer endorsement revenue until a certain level of popularity. For an influencer, once certain popularity reached, the engagement rate on their social media does not play anymore a key role in the establishment of their endorsement revenue.

Following in this paper we will try to find out if an athlete should master only one social media or should have a multi-platform social media strategy. The hypothesis tested above could not differentiate social media and their different importance for a

high level athlete. One of the goals of the next hypothesis will be to determine if one of the three social media among Twitter, Instagram and Facebook is more important when it comes to high level athletes and their endorsement revenue.

3.3. H3: To maximise their endorsement revenue High level athletes should be present on Twitter, Instagram and Facebook

The purpose of this hypothesis is to find out if high level-athlete should be present on all three social media among Twitter, Instagram and Facebook to maximise their endorsement revenue. This means that athletes with an account and active on Twitter, Instagram and Facebook should have higher revenue than athletes not present on all 3 platforms. Earlier in this paper we found out in the scientific literature that influencer higher their endorsement revenue by multiplying their online presence on different social media. The goal here is to test this last affirmation based on our database.

To test this hypothesis, we will compare the endorsement revenue of the athletes present in our database. To identify if there is a statistical difference in the endorsement revenue we separate athletes of our database into 2 groups. First group gathers athlete present on all 3 social media (Twitter, Instagram and Facebook) and second group represent athletes active on 2 or less platform. To test a possible statistical difference we run a Student test.

welch Two Sample t-test

```
data:  t_Student$`Active` = 3` and t_Student$`Active` < 3`
t = 3.9447, df = 81.083, p-value = 0.0001689
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 4.086214 12.403333
sample estimates:
mean of x mean of y
11.265361  3.020588
```

The Student test is used to determine if the mean of the two distinct groups is globally different. According to the results above we can statistically affirm that there is

a significant difference between the means of the endorsement revenue of athletes presents all 3 social media and athletes active on 2 or less social media among Twitter, Instagram and Facebook. The test has a P-value inferior to 5% meaning that we can reject the null hypothesis implying the means difference of the two groups is equal to 0. In other words, one of the two groups tested has higher endorsement. Let us have a look at the means of endorsement revenue of our two groups.

We will separate our database into two groups. Group 1 will gather athletes from the Forbes top 100 present and active on Twitter, Facebook and Instagram. Group 2 will be formed by the rest of the athletes present on two or less social media among Twitter, Facebook and Instagram. We will compare the endorsement revenue mean and median of the two groups.

	Group 1	Group 2
Number of athletes	83	17
Endorsement revenue Mean	11,3	3,0
Endorsement revenue Median	4,5	0,8

As we can see in the table above group 1 has a higher endorsement revenue mean, \$11,3 million when group 2 endorsement mean is of \$3,0 million. Similarly, group 1 median is of \$4,5 million which is way higher than group 2 median \$0.8 million. In addition, the number of athlete present on all 3 platforms represent the majority of our database, indeed 83 out of the 100 athletes of our list are active publically on Twitter, Instagram and Facebook. Only 17 athletes of our database not use all three social media.

Based on the table above and the results we can confirm the hypothesis that high level athletes present on all three, Twitter, Instagram and Facebook have higher

endorsement revenue than high level athletes present on less than the three social media of our interest.

3.3.1. Summary of H3 and discussion

We figured out the best social media presence strategy among Twitter, Facebook and Instagram for high level athletes. Our hypothesis was that, to maximise their endorsement revenue high level athlete should be present and active on all 3 social media studied in this paper. The result of our test confirmed our hypothesis.

In the first part of this paper we saw the importance for influencer to be present on a maximum social media channel. As high-level athletes are special influencers since we proved it when testing the previous hypothesis, here we wanted to verify if a maximum presence on social media applied to high-level athletes.

Build on the result above we can affirm that high level athletes who are not present and active on Facebook, Instagram and Facebook have lower endorsement revenue than high level athletes present on all of them. This result is in correlation with the influencer theory discussed in the first part of this paper. However, the specificity of high-level is underlined by the fact that our database is formed with the athletes with the highest endorsement contract of the planet, so these athletes do not have huge endorsement contract because they are present on all of the most important social media. They are present on all of the most popular social media because they are obliged by their contractor to be present on them in exchange of juicy endorsement contracts. Some athletes enjoy exchanging with their fans on social media but the athletes who do not are still present.

Next Hypothesis is the continuity of the one tackled in this part. Now that we proved that it is important for a high-level athlete to be present on Twitter, Instagram

and Facebook, we will try to find out if star athlete had to keep only one social media which one should it is and why.

3.4. H4: Among Instagram, Facebook and Twitter Instagram is the social media that fits better the high level athletes demand regarding their promotion.

Based on the results above we found that high level athletes are special influencers, contrary to regular influencer high level athlete's endorsement revenue are not linked to their activity on social media and to their engagement rate. Their superstar statue allows them to manage their social media image differently than a lambda influencer. In the end what really counts is the popularity of the athlete, and we proved that endorsement revenue is positively correlated to the number of followers so by extension popularity. Previously the literature stated that Instagram is the influencer social media by excellence. The purpose of the forth hypothesis is to prove that Instagram is the most suited social media for special influencer such as high level athletes, for their promotion and their endorsement contract.

To test this hypothesis, we decided to compare Instagram, Facebook and Twitter based on the number of user on each platform and the amount of follower gathered by each athlete on all three platforms.

Social media	Number of users
Facebook	2 600 000 000
Twitter	321 000 000
Instagram	1 000 000 000

To compare the different platforms, we computed the follower rate of each athlete on all 3 social media platforms.

$$\frac{\text{Total Athlete Follower}}{\text{Total Platform User}} \times 100 = \text{Follower rate}$$

If Instagram is a better social media for high level athletes, logically the reach rate on Instagram should be higher than the reach rate on Twitter and Facebook. As we do not have the information of the reach rate of athletes on their social media we use the follower rate as a proxy. To identify if there is a statistical difference in the follower rate mean between Twitter, Instagram and Facebook we run a One-Way ANOVA, the grouping variable being the social media, and the follower rate on a specific platform being the dependant variable. We divide our database into 3 groups, each group representing the follower rate of the athletes on Twitter, Instagram and Facebook.

Analysis of Variance Table

Response: Anova_\$Followers

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Anova_\$Media	2	0.009563	0.0047814	5.536	0.004416 **
Residuals	263	0.227153	0.0008637		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

The ANOVA is used to determine if the mean of the data of our interest is globally different. According to the results above we can statistically affirm that there is a significant difference between the means of the follower rate on Instagram, Facebook and Twitter. The variable "Media" representing Twitter, Instagram and Facebook follower rate has a P-value inferior to 5% meaning that we can reject the null hypothesis implying the means difference of the different groups is equal to 0. In other words, one social media platform gathers more followers for high level athlete in function of the number of their users. Let us have a look at the means of Follower rate for each social media platforms.

Social media	Follower rate mean
Twitter	1,76%
Instagram	1,31%
Facebook	0,30%

As exposed in the table above it seems there is a difference between Twitter, Instagram and Facebook regarding the follower rate mean of the athlete of our database. As our ANOVA test is significant we can run a post-hoc test to determine if the mean difference between specific pairs of group is statistically significant. We compute a Tukey Honest Significant Differences test to perform multiple pairwise-comparisons between the means of group.

Tukey multiple comparisons of means 95% family-wise confidence level

```
Fit: aov(formula = Anova2$Followers ~ Anova2$Media)
```

```
$`Anova2$Media`
      diff      lwr      upr    p adj
I-F 0.010110643 -0.000505934 0.02072722 0.0657200
T-F 0.014617537  0.004106044 0.02512903 0.0033919
T-I 0.004506894 -0.005653865 0.01466765 0.5488731
```

According to the outputs the only difference in the follower rate mean statistically significant is between Twitter and Facebook with a P-Value inferior to 5%. The difference between Instagram and Facebook has a P-Value close to 5%.

Based on our statistical test above the social media with the lowest follower rate mean is Facebook with 0.3% rate. Concerning Twitter and Instagram they respectively have 1.76% and 1.31% rate mean. We can affirm that athletes have a greater popularity on these last two social media. These results correlate with our theoretical part

explaining that Facebook was much more used for personal social interaction than Twitter and Instagram. However, Twitter and Instagram users like these platforms to interact with their favourite celebrities. These last two social media are much more shaped to promote superstar. Based on our previous statistical research we can declare that Facebook takes a backseat to Twitter and Instagram when it comes to high level athlete promotion.

Another statistic that differentiates Facebook from Instagram and Twitter in our database is the amount of athlete using each social media. As a reminder our database is the Forbes top 100 revenue ranking of high level athletes in 2019. For information, the Formula 1 racer Sebastian Vettel is the only Athlete in the list who does not use publicly any of the 3 social media of our interest. The table below represent the amount of athlete in our database using respectively Twitter, Instagram and Facebook.

Social media	Amount of athlete using the social media in our database
Twitter	95
Instagram	91
Facebook	87

The social media hosting the most high-level athlete part of the Forbes top 100 is Twitter with 95 users followed by Instagram and Facebook with respectively 91 and 87 result. It is interesting to notice that there is a correlation between the follower mean rate and the amount of athletes using the social media. Twitter has the highest follower rate mean followed by Instagram then Facebook. When it comes to the amount of athlete in Forbes list using the social media the order is the same than with the follower rate mean. Twitter is the most used by the athletes of our list followed once again by Instagram and then Facebook.

It seems that Instagram and Twitter are the high-level athlete favourite social media and that Facebook is a bit abandoned by them. To differentiate Instagram and Twitter let us have a look at the average reach generated by the athletes in our database in function of the social media. As a reminder “the reach” can be considered as the effective audience of a social publication.

Social media	Athlete average reach
Twitter	5 652 115
Instagram	13 100 940
Facebook	7 774 771

The table above is undoubtedly interesting; based on our database, Instagram is the social media with the highest average reach with an effective audience of 13 100 940 followed by Facebook with an average reach of 7 774 771 and finally Twitter with an average reach of 5 652 115. Our previous results brought Twitter as the social media with the highest Follower rate mean and as the social media the most used by the athlete’s part of our top 100, followed closely by Instagram. Twitter seemed to contradict our hypothesis that Instagram is the social media to master for high level athletes if they had access to only one channel. The last table on athletes reach average changes the deal indeed, Instagram is by far the social media with the highest reach which is crucial when it comes to athlete promotion as seen in the theoretical part.

In conclusion, based on our previous analysis we can confirm our hypothesis, Instagram is the social media that fits the best high level athlete promotion demand.

3.4.1. Summary of H4 and discussion

We tested the fitness of Twitter, Instagram and Facebook to the promotion of high level athletes. The goal was to determine which social media should be mastered by

high-level athletes to maximise their endorsement revenue. The result of our test confirmed our hypothesis, if high level athlete had access to only social media to promote their self they should go with Instagram.

Based on the Forbes top 100 on high level athlete endorsement revenue, we analysed the 3 social media studied in this paper Twitter, Instagram and Facebook. We determined the number of users on each social media. We then computed in function each social media users the athlete follower rate mean of each social media. We runned a one-way ANOVA to prove that the follower rate mean of each social media was statistically different. We Figured out that Twitter and Instagram had the highest follower rate mean for high level athletes, meaning that in function of the number of users of the social media the Twitter and the Instagram of high level athletes gather more followers. Next we pointed out the popularity of each social media for the athlete's part of our database. Twitter is the social media with the most athlete of our list active on it followed by Instagram. Finally, we calculated the average reach for the athletes in our database of each social media. Instagram is the social media with the highest average reach.

All the previous computation permitted us to confirm our hypothesis, Instagram is the social media high level athletes should focus the most to promote their self in order to maximise their endorsement revenue. The previous hypothesis confirmed us that being present on all three channels (Twitter, Instagram and Facebook) maximise high level athlete's endorsement revenue. Here the hypothesis brings clarification on which social media, among Twitter, Instagram and Facebook is the most suited for special influencers like high level athletes.

Conclusion

The goal of this thesis was to study the link between high level athlete's endorsement revenue and their social media. Our research purpose was to enlighten a part of the literature on the special statue of high level athletes in their influencing role. In this paper we proved that there is a link between athlete's endorsements revenues and their social media activity, popularity and management.

According to our statistical tests, athlete popularity on social media is linked to their endorsement revenues. As observed in our theoretical part on influencers the amount of followers is an important factor in endorsement revenues. Here we have a similarity between regular influencers and high level athletes. All social media studied, Twitter, Instagram and Facebook confirmed the positive correlation of and athlete endorsement revenue and their amount of followers on each social media.

Concerning the engagement rate of high level athlete it does not follow the same rules than regular influencers. Indeed, engagement for influencer is a crucial metric to monitor, the higher the engagement rate of an influencer the higher are his endorsement revenues. In our research we proved that high level athletes are special influencers since their endorsement revenue evolves regardless to their engagement rate. The precedent affirmation applies for the 3 social media analysed in this paper. Here we have an example of the singularity of high level athletes that is explained by their superstar statue. The engagement rate of an influencer has an impact on endorsement revenue until a certain point of popularity. Exceeding certain popularity the number of follower is the core driver of endorsement revenue.

When it comes to the choice of the social media presence strategy we verified the theory seen in the literature affirming that a presence on a maximum of social media channels is the best online marketing strategy. High level athletes verify the last

declaration. In our database, athlete present on all 3 social media studied (Twitter, Instagram and Facebook) have on average higher endorsement revenues than the athletes not present on all 3 social media. Here Star athlete can be categorised as regular influencer since they are not different to influencer when it come to their social media presence strategy.

Admitting that the best presence strategy for an athlete is to have an account and be active on Twitter, Instagram and Facebook it is still interesting to determine in function of the specificity of high level athletes which social media studied fits the best the demand of an special influencer like high level athletes. Instagram is the social media high level athletes should master to higher their endorsement revenues. The analysis of our database and macro data on each social media allowed us to state the last declaration.

However, our work has limitations; the result exposed above should be taken with hindsight. We will expose the principal limitations trained by our paper.

Firstly, the database used to assess our computation is small. With only 100 athletes studied it is hard to give 100% credit to conclusion with such a small sample to study, even if our statistical tests are robust. Also the specificity of our database has to be underlined. The Forbes top 100 list is composed with very special athletes. Our conclusion speaks for high level athlete but they were based on athletes playing the most popular and financially rewarding sports. Testing a sample composed with athletes playing less popular sports will probably give some different results, but their endorsement revenue are not public.

The second limitation is the choice of the social media analysed and their metrics selected to fill up our database. Twitter, Instagram and Facebook were selected for their popularity, their relevance regarding the literature, and the free access to their metrics. We had to establish barriers to our work but studying social media such as YouTube and

Snapchat could have brought some other insights. The metrics analysed (number of followers, engagement rate) for our hypothesis were selected because they were available easily thanks to Phlanx the software used to extract the data. It will have been also interesting to analyse the link between the posting frequency of an athlete and his endorsement revenue for example. Our database can be completed with any social media metrics to test new hypothesis linked to our subject.

Furthermore, during our research we never mentioned that social media are not the only factor influencing high level athlete's endorsement. The truth is that many factors influence athlete endorsement revenue such as his age, sport played, sport performance and so on. To facilitate our hypothesis and models tested we agreed that social media was the only driver for high level athlete endorsement revenue.

Finally we have to ask ourselves does high level athlete always act on their social media with the intent to maximise their endorsement revenue. On the one hand it is common for professional athletes to have recourse to a community manager to deal with their online communication. On the other hand some athletes enjoy managing their social media without the help of a professional. By doing so Athletes expose their selves to possible communication error, but from a fan perspective these athletes seem much more closer to them since their communication is raw. It seems that today, professional athletes face the same issues than a company when it comes to communication, marketing, brand image. Exploring the loss/benefit of being represented by a community manager for a professional athlete could be interesting. Going even further by comparing star athlete to a company to point out the similitude and differences between them could bring light to a missing part of the sport marketing literature.

Appendices

Appendix 1 : Original database

Name	Age	Country	Pay (m\$)	Salary/Winnings (m\$)	Endorsements (m\$)	Sport
Roger Federer	38	Switzerland	93,4	7,4	86,0	Tennis
Tiger Woods	44	USA	63,9	9,9	54,0	Golf
LeBron James	35	USA	89,0	36,0	53,0	Basketball
Cristiano Ronaldo	35	Portugal	109,0	65,0	44,0	Soccer
Stephen Curry	32	USA	79,8	37,8	42,0	Basketball
Phil Mickelson	50	USA	48,4	12,4	36,0	Golf
Kevin Durant	31	USA	65,4	30,4	35,0	Basketball
Lionel Messi	33	Argentina	127,0	92,0	35,0	Soccer

Appendix 2 : Twitter data collected

Name	Followers_T	Likes_T	Comments_T	Engagement Rate	Est. Cost_T (m\$)
Roger Federer	12731908	10363	1086	0,09%	89123,4
Tiger Woods	6535207	7770	899	0,13%	45746,5
LeBron James	45957080	32901	7721	0,09%	321699,6
Cristiano Ronaldo	84573223	235913	19287	0,30%	592012,6
Stephen Curry	14314722	11485	1211	0,09%	100203,1
Phil Mickelson	510888	3218	262	0,68%	3576,2
Kevin Durant	18291069	1575	1948	0,02%	128037,5
Lionel Messi	394984	412	33	0,11%	45746,5

Appendix 3: Instagram data collected

Name	Followers_I	Likes_I	Comments_I	Engagement Rate	Est. Cost_I
Roger Federer	7668969	413905	6004	5,5%	53682,8
Tiger Woods	2208423	67814	724	3,1%	15459,0
LeBron James	64079718	900439	9429	1,4%	448558,0
Cristiano Ronaldo	217609757	6339690	41647	2,9%	1523268,3
Stephen Curry	30441314	572587	4214	1,9%	213089,2
Phil Mickelson	789436	32130	725	4,2%	5526,1
Kevin Durant	11841294	316483	47	2,7%	82889,1
Lionel Messi	150244039	3761000	35119	2,5%	1051708,3

Appendix 4: Facebook data collected

Name	Followers_F	Likes_F	Comments_F	Engagement Rate	Est. Cost_F	WebFW_F
Roger Federer	14860600	115211	4032	0,80%	104024,2	371515,0
Tiger Woods	3036616	4028	273	0,14%	21256,3	75915,4
LeBron James	23115997	12390	460	0,06%	161812,0	577899,9
Cristiano Ronaldo	122521293	824474	27142	0,70%	857649,1	3063032,3
Stephen Curry	8450981	7816	359	0,10%	59156,9	211274,5
Phil Mickelson	191853	93	4	0,05%	1343,0	4796,3
Kevin Durant	10139026	3868	344	0,04%	70973,2	253475,7
Lionel Messi	90170204	367158	14153	0,42%	631191,4	2254255,1

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