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January 2019

Presented at: 14th International Conference on Wirtschaftsinformatik (WI),
Siegen, Germany, 2019

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Abstract. International professional football has become a billion dollar market worldwide. Up to half of the world's inhabitants watch major events such as the FIFA World Cup or the UEFA Champions League Final. Central players and elements in this global advertising market are the clubs' teams and the players themselves. Social media platforms today allow professional footballers to reach millions of people through private marketing as individuals, thereby creating their own brand. The brand and reach of each player is also a valuable resource for clubs in terms of player value and transfer activity. The outlined results in the following article show indicate a positive correlation between the social media value of professional players and the transfer activities of football clubs. Consequently, the impact of digitization on professional football can be shown by a relationship which has not been investigated in research to date.

Keywords: social media, transfer market, digital strategy, football, star marketing

1 Introduction

Football is the world's most popular sport and is no longer perceived solely as a game but also as a battle for financial success [1]. The Fédération Internationale de Football Association (FIFA) alone generated sales of USD 734 million in 2017 [2]. The development and growth of the industry reflects the immense interest of the sport spectators [3]. Half of the entire human population is enthusiastic about football; 3.2 billion people alone watched the 2014 FIFA World Cup [4]. No other industry in the world has such a level of attention and awareness.

Due to this level of attention, it would seem natural that the best clubs and players themselves create strong brands. Nowadays, the most important information systems for these actors are social media (SM) platforms like Twitter, Instagram, and Facebook [5]. Football companies and the players have a unique advantage over all other companies when it comes to SM. Fans are intrinsically motivated to consume the content provided by clubs, while traditional companies must actively contact customers to attract their attention [6]. The only challenge for the sport's clubs is to attract fans from other clubs. An effective method is obvious: star marketing [7]. Fans are interested in clubs on the one hand, and in the players themselves on the other. A logical

conclusion would be to oblige all players to enhance their reputation among fans and thus be valuable for the club's SM appearance. However, to what extent the clubs have acted in this way has not been investigated in any field of research to date.

A lot of work was done on the use and value of SM for sports clubs [1,7,8]. However, to date, there is a research gap relating to the way and extent the SM value of players shape clubs' SM reach and how this is taken into a club's consideration regarding actual player transfer activities.

Consequently, in this paper the relationship between the SM value of players and related transfer activities will be examined. It is assumed that the purchase of a player on the one hand is driven by his value as a football player, and on the other hand also by his brand value. Consequently, transfer activities might be impacted by the SM value of the players, as SM is the predominantly used information system for brand development in the market. We provide a model to investigate this relationship. Concretely, the following research question should be answered:

Is there a correlation between SM parameters and transfer activities, and could professional clubs take this into consideration?

To answer this research question, this article is structured as follows: In the following section the theoretical foundations and relevant work of success criteria and brand management in sports are discussed. In the next section we apply the chosen research method to the field. Subsequently, we present the results and discuss the main findings. Finally, a conclusion is provided containing limitations, implications and future research.

2 Theoretical Background

2.1 Success Factor Player

First of all, in terms of market theory, the difference in a sporting and an economic competition between football clubs has to be remarked upon [9,10]. Sporting competition is characterized by sporting success as the defined market outcome. In relation to one's opponents, those who achieve better placings in competitions are successful in sport [11]. With respect to sporting outcome, the acquired player talent is the most influential determinant in football clubs' production functions [12-14]. The distribution of player talent therefore shapes the sporting competition and determines sporting success in team sports. The success in sport competitions, in turn, is of central importance for the economic success of clubs, defined as the greatest possible outcome on product markets and thus generation of revenue streams (e.g. tickets, media rights, merchandise items) [15]. In a simplified scheme, sporting success causes higher demand and results in more trophy money [16]. Team sports contain attributes of a positional good where marginal changes in sporting success cause huge differences in revenues [17-19]. However, players' talent or sporting success is only one determinant for the revenues generated on product markets. In addition, an impact is made by market size, consumer purchasing power, substitution possibilities, club history, fan culture, uncertainty of outcome or the team quality, including "superstar effects" [16,20].

However, sporting success not only influences economic success, but is also in turn highly affected by the economic potential the other way around. Economists describe this intertwining by the concepts of derived demand and marginal revenue product [21-23]. In simple terms, the marginal revenue product (MRP) is referred to as the marginal productivity of the player's labour effort in relation to the revenue the club can generate from that marginal product [24-26]. The higher the club's revenue streams or the player's ability to increase revenue streams, the higher the player's MRP. Consequently, a higher MRP implies a higher demand for this player leading, *ceteris paribus*, to higher wages and transfer fees. In sum, the MRP is determined by club-related economic criteria as well as player-related characteristics. Big market clubs manage to generate more money regardless of the acquired playing talent. Consequently, these clubs are willing to pay higher wages and transfer fees caused by a generally higher revenue and MRP level.

Turning to the players' side, MRP relevant factors can be distinguished in two aspects [27]. The first part describes the players' contribution to sporting success and related revenue, including trophy money. Furthermore, and besides actual on-pitch performance, a player-related revenue could be generated because of his image and brand value. Hence, the MRP in a single period can be specified as [27] :

$$\text{MRP} = (\text{PWC} \times \text{MWR}) + \text{PBV} \quad (1)$$

PWC stands for player win contribution or, in other words, the marginal gain in sporting team success. MWR is the marginal win revenue the club can generate out of this marginal gain in sporting success. PBV means player brand value and represents the brand-related revenues which can be made out of the additional media and spectator attraction.

The effect of generating additional and often disproportionate revenues solely due to the image or brand of a player is often referred to superstar effects [28,29].

As sporting competition is mainly driven by player talent, and, as seen above, talent demand is strongly connected to economic demand, it appears that economic competition would seem to highly correlate with sporting competition [30]. Obviously, from both an economic and a sporting point of view, players are the clubs' most important investment [31].

The transfer markets are the central platform to invest in players and to process player transfers. Transfers are often based on different MRPs indicating different demand curves between buying and selling clubs. Greater MRP differences due to greater revenue divergences trigger player transfers and are clearly among the main reasons for expanding player migration in global football, although if a player is to change clubs before the end of his contract, this contract must be terminated. The buying club pays the selling club a transfer fee so that the seller is willing to terminate the current contract with the player [32]. In relation to the Union des Associations Européennes de Football (UEFA), the market value of a professional athlete represents the monetary amount the club is willing to pay in order to contractually bind this athlete [33]. The market value of all players in a club results in a total team market value [34]. As seen above, the market value of players expresses the sum of the discounted MRPs over the length of the player's contract [27]. On the premise that clubs act with

economic rationality, transfer fees should not exceed the MRPs and should reflect the market value.

2.2 Social Media Brand Value

Advertising and transmission fees represent the largest sources of income for clubs [35]. The strategy of owning a brand strong enough to generate sufficient revenue from merchandise, ticket sales and international transmission is therefore a key objective in team sports economic competition [11]. A brand is the focus of all expectations and opinions of customers, employees and other stakeholders about an organization and its products and services. According to Brand Finance, a brand's technical implementation comprises the components contribution, strength and value [36].

Television has changed sports brand marketing and the sports information industry. Similarly, SM also triggered a great change [7], which brings with it the digital transformation of sports companies [37]. A strategic orientation towards SM is necessary for the successful brand management of football clubs [37]. One reason for this is that, more than ever, brands are required to find new ways to communicate with young consumers who spend less time on television, print and other traditional media, and are more likely to be addressed by digital marketing communication [38]. SM is increasingly seen in this context as an additional marketing channel through which companies can communicate and interact with their consumers or potential customers [39]. SM marketing is therefore primarily about listening to the users of SM and responding appropriately [40]. These dialogues have a direct positive effect on the advertisers' results by driving the fans' behavior towards the consumption of the advertised services and products [41]. Professional sport associations are trying to address and monetize this potential use of SM marketing [8]. This is currently done via SM communication [8] and Web 2.0 technologies [40].

The SM presence is subject to a complex composition, though. The presence refers to all engagements [8] which are implemented with club-own or player-own profiles in social networks. In addition, it is important to implement a purposeful approach to the player's brand, in order to distinguish him as an independent brand from the mass of professional football players. As part of sports marketing, this refers to star marketing and could be of great importance for the brand of a club, because the combination of different SM profiles has a positive effect on the interaction of each individual page [7]. Digital reaches are created by the profiles of the clubs on SM channels [8] and are reinforced by profiles of the players, because each player represents the image of the club [42].

The overall aim of this paper is to disclose player transfer effects and the inherent player SM activities on the clubs' SM appearance and to interpret the influence of SM on the transfer activities itself.

3 Research approach

3.1 Model Assumptions

To design the relationship, the complex reality is broken down into a simplified model. The following axioms therefore apply to the further procedure, which are intended to illustrate complex real interrelationships in a simplified manner:

1. A search query of an individual (fan) to the search engine Google implies interest of this individual (fan) in the object (transfer or club) or subject (player) searched for.
2. The interest of an individual in an object (transfer) or subject (player) lies in the expected change of his state (transfer of player).
3. The interest of an individual (fan) in the expected change of state of a subject (player) justifies the willingness to use information channels (SM channels of the clubs).

Football fans exist as supporters of clubs and as supporters of individual players. Only negative associations can arise, therefore, when players leave. Although there are cases in which player changes among local rival clubs lead to a negative mood among fans, these are neglected in the present analysis. On the one hand, no profound rivalries between the old club and the new club could be found in any of the transfers levied. On the other hand, only new players are considered. From this follows the continuing formulation of two further axioms:

4. A change in the state (change of players) of a subject (player) can only positively influence the information channels (SM channels of the clubs) of an object (club).
5. The regularity of exceptional events confirms their dependence on a regularly recurring variable.

Based on these assumptions, the procedure is further divided into three steps. The first section deals with the study of the existence of a stochastic dependence of the growth of the clubs' SM reach in the season, particularly the transfer period (Section 3.2). The second step aims to identify and describe the direct influence of a player transfer on the SM accounts of the clubs (Section 3.3). Lastly, the final step is to categorize transfers to obtain an assessment of club activities (Section 3.4).

3.2 Stochastic Dependence

If fans have a special interest in player changes, that interest will affect the search hits and therefore affect the clubs' SM reach regarding to the above-mentioned axioms 1 & 2. The effect we are looking for lies in the distribution of clubs' SM reach growth peaks. Players can only be transferred during those periods and hence a fans' action on interest in player changes appears during transfer periods. Related to this constraint, growth peaks of clubs' SM must depend on the transfer periods. To prove this, we investigate the stochastic dependence of both quantities. Stochastic independence from events means that they do not influence each other or are influenced jointly by other events. This relationship makes it possible to determine the direction of an existing stochastic

dependence from the assumed causal relationship. The existence of stochastic independence is confirmed if formula 2 is fulfilled.

$$P(S \cap T) = P(S) \times P(T) \quad (2)$$

The existence of stochastic dependence is therefore confirmed in the event of inequality between the two terms. The variables S or T stand for event one or event two. Event one (S) represents the absolute count of growth peaks. Event two (T) therefore outlines the absolute count of data points within the transfer period. The data collected are available in the form of absolute daily growth. Each data point consists of both the index T whether it is inside the transfer period or not, and the index S whether it is a growth peak or not. Growth peaks S are extracted using boxplot diagrams. Then the distribution of the outliers over four intervals was measured.

3.3 Interest in Players Analysis

The aim of this paper is to investigate the possible impact of SM on the transfer activities of professional sports clubs. With this in mind a special focus lies in asking to what extent player changes and therefore the interest of fans on players can influence the SM reach of sport clubs. If an effect of a transfer on the clubs' SM channels can be shown, a new dimension of players' value will be identified. This digital transformation-driven value might open up new types of transfer fee amortization and income.

To analyze this influence, we focused on the growth behavior of the SM reach of the clubs during the weeks of the year in which transferred players received the highest media interest. Doing so allows us to extract the periods in which the player was of special interest among fans because they looked for information about him. Corresponding to the above-mentioned axioms 2-4, the fans' interest causes SM engagement with the clubs' channels. In contrast to the method used in Section 3.2, which was used to identify the link of SM growth and the transfer periods, the approach described in this chapter quantifies the direct influence (E_{dir}) of transfers on the SM channels and therefore the willingness to pay for players with regard to their digital value.

The analysis tool Google Trends is highly valuable in recognizing fans' interest. Using this tool allows us to identify the search relevance per week of a player on the search engine Google over the last 12 months [31]. Again, regarding axiom 3, this exposed interest can be related to the willingness of the searcher to get information about a player and therefore encourages the usage of information channels about the player. Consequently, an increase in hits to players' and clubs' SM channels is predicted. The method used in this chapter is meant to show a direct influence (E_{dir}) which would prove the mentioned relation between fans' interest and an increase in SM channels' followers.

$$E_{dir} = Z_{middle,week} - Z_{middle,period} \quad (3)$$

The variable $Z_{\text{middle,week}}$ characterizes the mean daily SM follower growth during the week within the considered period in which the search volume of an individual was of highest interest on Google's search engine. In contrast, $Z_{\text{middle,period}}$ stands for the mean follower growth of the individual's channels over the entire survey period. The difference between the average daily increase within the week in question and the average daily increase over the survey period represents the direct effect E_{dir} of the player transfer on the clubs' platforms. The search peak of the new player and not the date of the change of player was selected as the period to be examined. This made it possible to include the reaction speed of the interested individual. The premise was that a fan can only become active on search engines and social channels as soon as he or she learns of at least one rumor about a possible transfer or the execution of the transfer itself.

3.4 Transfer Classification

After examining the direct influence of the transfers on the channels of the clubs, the individual player changes were categorized. For this we took into consideration four basic characteristics: (1) new player improves the starting line-up, (2) new player uses SM, (3) new player causes a recognizable effect (E_{dir}) on clubs' SM channels' followers, and (4) new player evinces SM potential. All of the characteristics have been regarded as dummy variables. The changes were hierarchically assigned to the classes: supplementary player, SM reach applied player, balanced player, sporting improvement player, SM star player and star player.

Previous research took various factors such as fitness, minutes played, and duel strength into account to compare sporting analysis units [15,31]. For this study, however, the sporting performance of a player was limited to the achieved point average per game and the average minutes played per game. A player who plays for a team that has a high average score and is therefore successful shows a high sporting quality simply through his status as a team member. The inclusion of the average minutes played per game additionally specifies the qualitative classification of the player. The importance of the player in the team is derived from this, since better players are usually used more frequently [31].

To measure the sporting performance, a new variable F was implemented. As mentioned above, F consists of the average minutes played and the achieved point average during the season 2016/17 ($PPS_{16/17}$). Formula 4 shows that the average minutes played per match were calculated by dividing the absolute minutes played by the player during the 2016/17 season ($M_{16/17}$) by the total number of matches played by the team the player represented during the 2016/2017 season ($G_{16/17}$).

$$F = M_{16/17} * (G_{16/17})^{-1} * PPS_{16/17} \quad (4)$$

If a player has a better score than his worst position-related competitor, this transfer was considered a sporting improvement. Not all players of the squad were used as a yardstick: only the players of the starting line-up. The starting line-up is based on a 4-4-2 system as standard. A midfielder was therefore a sporting improvement if at least one of the four best midfielders has had a worse factor than the player in question.

The attributes ‘uses SM’ and ‘effect recognizable’ reflect the ability of the player to gain a digital advantage for the buying team. The former attribute includes the player's own digital commitment. A positive manifestation exists as soon as the player in question operates one or more official SM channels. The latter feature, on the other hand, is based on the findings of the above-mentioned interest in player analysis. This attribute is available as soon as a positive effect has been recorded ($E_{dir} > 0$).

The SM-sports weight ratio (WR_{SMS}) ultimately provided information about the transfer motive.

$$WR_{SMS} = (SM \text{ reach}) * (F)^{-1} \quad (5)$$

As a quotient of the SM reach and the player's sporting performance factor, the WR_{SMS} stands for the SM potential of the player. An above- or below-average ratio indicates a large (small) or small (large) digital (sporting) potential. All above-average digital potentials that could be identified as outliers via a boxplot diagram were classified as exceptionally strong. A weak potential is automatically present if the player in question does not have a SM channel. It is important to note that we did not investigate where the player's followers came from, for which reason they became followers, or who manages the profile.

The classification was executed using a Bayes Classifier. Therefore, we provided the above-mentioned characteristics to a sample data set. We then applied a Bayes learner as shown in Figure 1. The sample data used represented all combinations of states that the variables could assume.

The learner then predicted the algorithm learned from the sample data for the Bayes Classifier which we executed on the main data set of 124 player changes. As a result, every transfer was matched to one of the five classes described in the following: A balanced player may use SM and possibly might have a direct effect, but the sporting factor must be weighted more strongly in relation to its digital reach. Therefore, this player is neither an enormous sporting improvement nor an outstanding digital improvement. A sports-related transfer is therefore every player who represents an improvement in sports and whose weighting tends to be in addition to the sporting value. If there was a sporting improvement together with a strong or extraordinarily strong SM potential, this player would represent a star transfer. Conversely, SM stars have an exceptionally strong SM potential but cannot remarkably improve the squad in sporting terms. A player with a higher weighting on the reach, who either cannot have a direct effect or does not represent a sporting improvement, is assigned to the reach class. Finally, all players who do not fulfill any of the attributes are additional players.

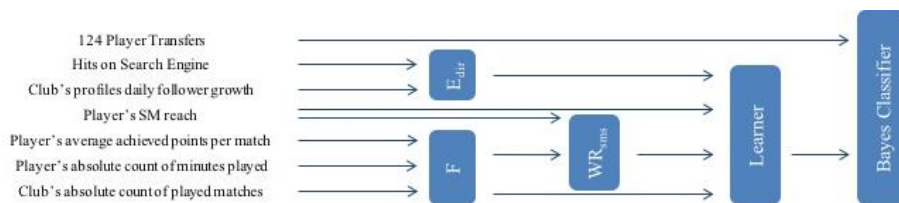


Figure 1. Statistical Approach

3.5 Data Collection

The analysis focuses on the 20 clubs with the highest income in football worldwide [35]. Müller et al. [31] point out that in professional football, the channels YouTube, Facebook, Twitter and Instagram are the most important. YouTube is a video portal and primarily serves to support the sporting event [40]. For this reason, it is assumed that growing reach in this medium is based more on sporting highlights than on transfer effects. The analysis used daily followers growth from all official channels of the clubs on Twitter and Instagram platforms. Channels which obviously had no relevance for the men's football team (youth, women's division, handball, etc.) were ignored. A total of 43 official Twitter and 20 official Instagram channels were identified. The historical data was collected by the online platform SocialBlade, which resulted in a dependence on the platform in terms of data quality and completeness. The study took place from November to December 2017. The increases were considered in the period from May 1, 2014, to October 31, 2017. Missing data entries were added using linear interpolation.

In addition, data on transfer transactions were used. Due to the lack of coverage of historical data on Twitter profiles, the individual consideration of the transfers had to be limited to the summer change period of the 2017/18 season. The Transfermarkt.de platform, which is characterized by high data quality and domain-related relevance [31], collected all new transfer entries for the aforementioned change period of all 20 clubs considered. All returns on loan that had already been purchased and subsequently borrowed in previous periods were excluded. Also disregarded were former youth players who transferred from the youth team to the men's team of the same club. The survey yielded 124 hits. For all the relevant transfers found, the existing SM reaches of the players on Instagram and Twitter channels were collected on May 30, 2017. The SM reach represents the sum of the followers on both channels. The weekly time period for each transfer in which the search volume of the player concerned was highest was then collected with the help of Google Trends. The period in which the maximum number of search queries was determined was twelve months retroactively from December 31, 2017. From a total of 37,868 data points, 1,904 profile-related outliers could be identified as growth peaks S . As expected, 30.79% of all data points were within the transfer period due to the seasonal distribution. 73.58% of the growth peaks were in the period of one transfer period.

4 Findings

The application of formula 1 to the values resulted in an inequality. This result confirms the existence of a stochastic dependence of the variable peak growth and transfer period. As stochastic dependence indicates only the existence of a correlation and not the cause of it; the direction of this dependency cannot be determined from the numerical values. Nevertheless, 73.58% of all growth peaks were in the transfer period interval and 70.97% of the considered transferred players experienced the largest search volume in at least one week which intersects the transfer period.

For the purposes of this review, a positive effect of a transfer for a club has been defined as an impact on its SM commitment. In this model, this effect was assigned to the growth of the follower numbers. From the connection of the week of the search peak and the increase of the SM channels, the key figure of the direct effect could be calculated. Table 1 shows the effects of the summer transfer period 2017/18 and the transfer sums for each player.

91 out of 124 newcomers use SM. At the same time, 72.53% of these were able to gain a direct effect of an average of about 4.5 thousand new followers. The medium SM reach of these players thus exceeded the medium reach of players without effect by about 2.8 million followers. The average transfer fee for players with an SM appearance was about twice as high as for those players who do not maintain a presence in social networks.

Table 1. Transfers and SM usage

| Influence | Descriptive statistics | Uses SM | Doesn't use SM | Total |
|------------------|---|---------------|----------------|------------|
| $E_{dir} > 0$ | Number | 66 | 19 | 85 |
| | Share (within vertical category) | 72.53% | 57.58% | |
| | Share (within horizontal category) | 77.65% | 22.35% | |
| | Share (of the whole) | 53.22% | 15.32% | |
| | Average transfer fee (€) | 25,093,878.79 | 10,036,842.11 | |
| | Mean positive effect (adjusted for mean growth) | 4,472.83 | 3,859.21 | |
| | Average follower number | 3,498,609.42 | - | |
| | Correlation follower and E_{dir} | 0.2988 | - | |
| $E_{dir} \leq 0$ | Number | 25 | 14 | 39 |
| | Share (within vertical category) | 27.47% | 42.42% | |
| | Share (within horizontal category) | 64.10% | 35.90% | |
| | Share (of the whole) | 20.16% | 11.29% | |
| | Average transfer fee (€) | 13,623,800.00 | 6,230,769.23 | |
| | Average follower number | 726,469.12 | - | |
| Total | | 91 | 33 | 124 |

The data also show that 57.58% of the transferred players without a SM appearance also have direct positive effects. The transfer sum for those players without SM channels is also approaching at least the transfer sum for players with a SM presence. The average transfer fee paid for players without SM and with effect was closer to the average amount paid for players with SM and without effect than for players without SM and without effect.

Finally, Table 2 presents the classification of individual transfers for the 2017 summer change period. 6.45% of the transferred players were purchased for an average of 5.75 million euros. Balanced players make up a share of 29.84% with an average transfer fee of 11.8 million euros. With 33.87%, the sports class represents the largest share of transfers. The average transfer fee is 17 million euros above the average for additional players, but below the sums paid for the individual classes with SM motives. The three categories that indicate a SM motive (reach, SM star, star) account for a total of 29.83%. Consequently, almost every third transfer could at least be associated with SM strategic motives.

Table 2. Classification

| Class | Number | Share | Average transfer fee (€) |
|----------------------|--------|--------|--------------------------|
| Additional player | 8 | 6.45% | 5,750,000.00 |
| Balanced player | 37 | 29.84% | 11,841,756.76 |
| Sport improvement | 42 | 33.87% | 17,084,047.00 |
| SM reach improvement | 10 | 8.06% | 18,615,000.00 |
| SM star | 10 | 8.06% | 19,310,000.00 |
| Star player | 17 | 13.71% | 41,382,352.94 |

5 Interpretation

The results show that the development of the SM reach of clubs is not a coincidence. As seen in the findings, the greatest growth spurts result from events that occur within the transfer window, hence a concrete connection between the SM growth and the annual transfer period was confirmed. Due to the given assumptions, this indicates that transfers have an impact. Being able to achieve a SM effect through a transfer therefore should influence the transfer decision itself. This explains SM's influence on the transfer decision and thus on the transfer market, because clubs try to use SM as a strategic means to ensure long-term success [8,11].

However, there were also growth peaks outside the transfer period. These peaks can be explained either by sporting events, i.e. particularly sensational events, or speculations in the run-up to an imminent transfer [5]. However, since these are the minority, the question of a connection between the appearance of players and clubs on social networks and the transfer market can be answered affirmatively.

Regarding transfers in the context of this paper, the SM motive and therefore the influence of SM on the transfer market is associated with an additional reach, which is transferred to the sphere of influence of the club in the form of the reach of the new player. This might influence the willingness of clubs to pay for players, as the higher transfer sums indicate. This expresses the potential benefit via the indirect digital expansion through followers of the player profiles. The potential can be explained by the fact that fans and followers of the player can identify more strongly with a club if

the favored player is under contract with the club. The media interest of the fans in the club increases through the interest in the player.

An unexpected direct effect was caused by players who do not have a SM profile. A possible explanation for this unexpected finding is once again the interest of fans in re-accessing the game. However, this creates a conflict, as consumers have no direct access to the player due to the player's lack of digital presence. Clubs can integrate these players into the generated content as part of the star marketing effort [7].

Due to the greater transfer sums, it can be assumed within the framework of the assumptions made that the clubs are aware of the digital potential from transfer transactions. Nevertheless, the values indicate a lack of knowledge in dealing with the digital potential of the players. The potential benefit consists of the components 'direct effect' and 'additional reach' through player profiles. The results suggest that the clubs are only aware of the players who have SM profiles on their own. The average fee paid for players who don't have SM but could impact a direct effect are lower than the fee paid for players who have SM but could not impact a direct influence. Therefore, if clubs would have been aware of those hidden players they would have been transferred with higher fees, especially when recognizing the average follower count of the players that do have SM but could not cause a direct effect being about 700,000. That volume of followers seems not to justify paying a higher fee.

Lastly, the differentiation between the six classes reflects the significance of the SM component in the transfer market. It was to be expected that star newcomers would require the highest transfer fees. However, it is noticeable that both SM stars and purchases for the reach are generally more expensive than for sporting improvements. This means that a player who only offers added value in the digital field is of greater value for sports clubs than a player who only contributes on the field. Against the background of any commercialization and globalization of sport, it can be confirmed within the framework of the assumptions made that it is no longer athletics but brand value that is in the foreground.

6 Conclusion, Limitation and Further Research

The model and the analysis steps depict reality in a highly simplified manner. Although it was suitable for identifying anomalies, the model does not manage to explain these anomalies in their complexity of real circumstances. This requires a much more specific and precise consideration. Both the categorization of transfers into classes and the comparative classification of club strategies offer a good approach for further refining the transfer analysis and still providing more sustainable models for the analysis of modern football than are available today [15]. Moreover, a more detailed analysis on individual players (e.g., good players in worse clubs) should be added to strengthen the model and analysis. Nevertheless, it is necessary to extend the transfer parameter set in subsequent analyses in order to take club and sporting MRP components into account. In addition, the sustainability of the analysis should be strengthened by extending an analysis to other SM platforms. Müller et al. [31] and Buhler et al. [40] cite as examples platforms which are of the greatest importance in professional association football. A

local analysis is another component that should be added to the model developed in order to identify the strategic actions of clubs. Finally, it is recommended to extend the analysis to a randomized sample in order to cover the entire global professional association football.

This study should be seen as a first step in the field. The authors tried to operationalize the underlying assumptions. As the results show, there is a relationship between the SM value of players and the transfer activities of clubs. Further research should develop the model to a more theory-driven basis and incorporate more parameters and a greater sample size.

As professional sports and SM do have a huge impact on social life, both academia and practice should increase the research in this field. Furthermore, professional Football Clubs should take this topic more seriously. As could be seen in the data, there are informational gaps about the potential value a player can add to the club by using SM. The teams should strengthen their knowledge in identifying those players and their potential values in a digitalized society, especially those players without SM profiles on their own.

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