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Greatest Sporting Cities 2018
Research Report

A report prepared for ESPN Sports Media Limited

by

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EXECUTIVE SUMMARY

The present report summaries the findings of a project commissioned by ESPN Sports Media Limited to inaugurate the UK's Greatest Sporting City 2018. Here, our schedule of work specifically determined, using a statistical composite of indicators derived from factors established in 2015 (Parker, Sarkar, & Curran, 2015), a ranking of the UK's greatest sporting city 2018.

The project had two objectives:

1) Data collection: Engage in an in-depth data mining and consultation period with sports fans to measure and rank-order the indicators of our ranking; a set of factors established as being central to a great UK sporting city.
2) Data analysis: Transform, weight, and aggregate the indicators to yield an overall composite index for the UK's greatest sporting city 2018.

A statistical construction of a composite indicator reflecting factors that encapsulate a Great Sporting City was employed to facilitate these objectives. This process comprises quantitative data collection and analysis. Data were collected via a combination of: (a) data mining for freely available information; and (b) a survey soliciting fan satisfaction with factors associated with a Great Sporting City. The collected data were analyzed using a weighted ranking of composite indicators.

Key Findings

Manchester is ESPN's Greatest Sporting City 2018
Manchester emerged as ESPN's Greatest Sporting City 2018, rising 1 place from 2nd in 2017. This achievement owed much to Manchester's consistency in scoring well across the vast majority of factors. Indeed, Manchester scored in the top quarter of all cities for half of the factors and did especially well on fan satisfaction. Here, Manchester were the top city for success and place in the top 10% of cities on fan satisfaction with local talent and social experiences. The city's Football teams, Manchester City and Manchester United, had good excellent seasons with City winning the Premier League title. The city's Rugby Union side, Sale, equally performed

well. The city also offers an impressive value for money (top 30%). Manchester's overall performance ensured that the city had enough to just beat local rival Liverpool for the second time in our ranking. It also this year performed better than a number of renowned sporting cities, including London, Glasgow, and Cardiff.

Edinburgh top Scottish city and 3rd overall

Edinburgh emerged as the top Scottish sporting city in our analysis for the first time, ranking 3rd overall. This is a big achievement for Edinburgh and owes much to the cities impressive performance on community, value for money, and participation. The cities football teams and Rugby Union side had very good seasons and for this reason Edinburgh ranked in the top 15% of cities for success. Local rivals Glasgow reamin 6th overall for this year's ranking.

Cardiff top Welsh city and Swansea bottom

Cardiff was the top Welsh city, but dropped 10 places to 19th. Although the football team were promoted, the cities Rugby team had a poor season and Cardiff scored low on atmosphere, economic impact and success. The other big story for Wales was that Swansea finished bottom overall, dropping 21 places. This is likely because the cities rugby and football teams had poor seasons (Swansea relegated) and the cities score very low on success, economic impact, and participation.

Leeds finishes top in the North and North East

Leeds emerges as the top city in the North and North East region placing 5th overall (1 place up down 2017). Leeds' performance was largely a function of the consistency of Leeds Rhinos and Yorkshire County Cricket Club who despite not taking any trophies performed well. The city also performed well on atmosphere, community, and choice.

Blackburn rise 25 places to 8th overall

Possibly the most eye catching performance this year is that of Blackburn who enter the top 10 for the first time and rise 25 places to 8th. The cities football team, Blackburn rovers, were promoted this year and there is evidently a feel good factor around the city. Blackburn were the top city for atmosphere and scores in the top 40% of cities in match day experience, success, and participation.

Birmingham inside top 10 for first time and top city in the West Midlands

England's second city, Birmingham, emerged from our analysis in the top 10 for the first time, rising 4 places to 7th overall. Birmingham scored well on venues and choice. Fans were also happy with opportunities for local talent and community links.

London top city in the South and South East

The Capital, London, placed 4th in this year's ranking – down 1 place from 2017. London's professional clubs performed reasonably well across the board without any major accolades. Yet scored poorly on choice and venues (both adjusted for population size) and the fan satisfaction remains modest when compared to cities in the North. This said, London still finished as the top city in the South and South East for the third year running. In this region, Portsmouth was next best in 21st.

Bath best in South West for the second time

Another disappointing year for the South West, none of its cities made the top 10. Bath was the best South West city, finishing 13th – an impressive 5 places up from 2017. It also beat Bristol, who had another disappointing year (17th). Bath's success was primarily due to the excellent value for money that the rugby club offers, the positive sense of community around the rugby club, and the high levels of physical activity in the city (2nd most active city).

Blackpool off the bottom for the first year

Blackpool emerged from our analysis in 40th position and this is first year that the city is off the bottom. Although the city has some way still to go to be ranked higher, this is positive move for the city that has had wretched luck in terms of sport in previous years.

Liverpool top football city

Perhaps surprisingly, Liverpool emerged as the top football city of 2018. LThis success owes much to the consistent high placing – especially on the football specific factors of atmosphere, community, and history. The other big football cities of London, Glasgow, and Manchester follow close behind.

Leeds top cricket city

The form and historical success of Yorkshire County Cricket Club ensured that Leeds was the again top cricket city of 2018. The other big cricket cities of Manchester and London follow close behind.

Bath top rugby union city

Bath emerged in our analysis as the top rugby union city of 2018. The excellent £10 cheapest adult ticket offered by Bath RFU meant the city well on value for money (1st). Fan satisfaction was also high with the city scoring well social/match day experience and community. The renowned Rugby Union city of Cardiff finished close behind in 2nd.

Leeds top rugby league city

Wigan placed as the top rugby league city in 2018. This was mainly due to the recent and historical success of Wigan Warriors.

1. INTRODUCTION

The present report summarizes the findings of a project commissioned by ESPN Sports Media Limited to inaugurate the UK's Greatest Sporting City 2018. Here, our schedule of work specifically determined, using a statistical composite of indicators derived from factors established in 2015 (Parker, Sarkar, & Curran, 2015), a ranking of the UK's greatest sporting city 2018. It is anticipated that the results of the study will generate discussion and debate amongst sports fans and other interested parties.

The project had two objectives:

1. Data collection: Engage in an in-depth data mining and consultation period with sports fans to measure and rank-order the indicators of our ranking; a set of factors established as being central to a great UK sporting city.

2. Data analysis: Transform, weight, and aggregate the indicators to yield an overall composite ranking for the UK's greatest sporting city 2018.

2. METHODOLOGY

The project employed a period of quantitative data collection and analysis to measure a number of indictors that together make up a composite index of ESPN's greatest sporting city 2018. This methodology is formally known as constructing a composite indicator (Rovan, 2014).

Composite indicators, which compare units of analysis (e.g., cities, countries, institutions, etc.) on certain metrics of performance (e.g., health, wealth, equality, etc.), are an extremely useful tool for policy analysis and public communication (OECD, 2008). With their emphasis on benchmarking performance, composite indicators are increasingly being employed to rank cities, countries, or institutions on important economic, social, and policy outcomes (Freudenberg, 2003). Indeed, the number of high-profile rankings derived from composite indicators has proliferated year-on-year (see Bandura, 2008). These include, for example, the Times Higher Education's World University Ranking, the United Nations' Human Development Index, and the World Economic Forum's Global Gender Gap.

In being able to integrate a large amount of diverse information, composite indicators are a valuable methodological tool for our project that seeks to rank UK cities on a number of factors that make up a great sporting city. This said, the construction of a composite indicator is not straightforward methodologically, and can be subject to misinterpretation and/or manipulation. Naturally, then, questions of the accuracy, reliability, and appropriateness of our composite indictor need to be addressed fully. In what follows, we detail each step of our data collection and analysis to document the procedures that took place to establish the composite indictor underpinning ESPN's 2018 greatest sporting city ranking.

Objective 1: Engage in an in-depth data mining and consultation period with sports fans to measure and rank-order the indicators of our ranking; a set of factors established as being central to a great UK sporting city.

In February 2015 a research team including the first author conducted 8 focus groups from a cross-section of major cities from each region of the UK[1] (Bristol, Glasgow, Birmingham, London, Cardiff, Manchester, Leeds, and Belfast). Each focus group consisted of 8-10 sports fans and was guided by a pre-determined interview schedule tapping into factors that comprised a 'great sporting city'. A detailed methodology and overview of the findings from this scoping exercise can be found in the 2015 report of ESPN's greatest sporting cities (Parker et al., 2015). In short, 12 indicators (termed 'factors') of a 'great sporting city' emerged in the focus groups. These were; value for money, participation, local talent, atmosphere, community, transport, recent results/success, social/match day experience, venues, choice, history, and economic

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[1] The 8 UK regions comprise: (1) North West (England); (2) North East (England); (3) Midlands (England); (4) South East (England); (5) South West (England); (6) Scotland; (7) Wales, and (8) Northern Ireland.

impact. These factors, and their measurement, are described in detail under the sub heading of *Factor Measurement and Weighting* in Section 3 of this report ('*Data Analysis*'). For reference, though, we provide an overview of the factors and their measurement in Table 1.

Given the heterogeneity of the factors identified as important to a 'great sporting city', a number of measurement issues had to be reconciled. Most notably, while some of the factors are necessarily objective in their nature (i.e., value for money, participation, venues, choice, history, and economic impact), others rely on either a mixture of subjective perception and objective information (i.e., success) or subjective perception only (i.e., local talent, atmosphere, community, transport, and social/match day experience). Moreover, not all factors were created equal, and some of the indicators emerged in the focus groups as more important than others (e.g., success vs community). In May 2018, we therefore embarked on an in-depth consultation period with sports fans to measure; (a) subjective perceptions of satisfaction with the identified factors and, (b) a rank-order of the most important factors. This consultation period encompassed the distribution of an online questionnaire to fans in the cities identified as units of analysis for our composite indicator (see below *City Selection* sub-heading in Section 3, '*quantitative data analysis*'). During this time, we collected the objective data, and these procedures are outlined below. This process of initial fan consultation and data mining and consultation period ceased in June 2018.

Table 1. Factors and their measurement

Factor	Measurement
Value for Money	This factor was measured by the ratio of the lowest home adult ticket price to median weekly wage for the professional football, rugby union, rugby league and cricket clubs in a given city.
Participation	This factor was measured by the percentage of adults participating in sport at least once a week (data from the Active People Survey, 2014, Sport Scotland, 2006, and the Active Adults Survey, 2009).
Local Talent	This factor was measured by fan satisfaction with the opportunity of young people to play for their local sports teams.
Atmosphere	This factor was measured by fan satisfaction with the sporting atmosphere and culture of their city.
Community	This factor was measured by fan satisfaction with club community involvement in their city.
Transport	This factor was measured by the satisfaction of fans with the transport links to and around their city's sporting venues.
Club(s) Success/Results	This factor was measured by a combination of fan satisfaction with the success of the professional football, rugby union, rugby league and cricket clubs (25%) and the average win:loss ratio of the professional football, rugby union, rugby league and cricket clubs (75%) in a given city.
Social/Match day	

Experience	This factor was measured by the fan satisfaction with the social and match day experiences for sporting events in their city.
Venues	This factor was measured by the ratio of aggregate sports venue capacity in a given city to its population.
Choice	This factor was measured by the population adjusted number of professional football, rugby union, rugby league and cricket clubs in a given city.
Sporting History	This factor was measured by the aggregate historical major trophy haul of the professional clubs in a given city.
Economic Impact	This factor was measured by the percentage of people employed in the sports industry in a given city (data from Sport England and BRES, 2013).

Objective 2: To weight the key factors, calculate the overall scores for the cities, and rank them accordingly

In June 2018, the research team analysed the data from the survey to assign factor weightings by a combination of rank-order importance and measurement accuracy (i.e., objective vs subjective). The full methodology for this weighting assignment can be found in under the *Factor Measurement and Weighting* sub-heading in Section 3 ('*quantitative data analysis*'). Once the weightings were assigned, the process of weighted-ranking began for the overall composite indicator. This comprised four stages:

(1) The raw data for the factors for each city were collected and placed in a database (e.g., fan satisfaction with sporting atmosphere, club success, history, etc.).

(2) Since the data differed qualitatively from factor to factor, the research team transformed the raw data onto a standardized 100-point scale. Once the data had been transformed to a common metric, each raw data point conformed to a uniform scale and was therefore interpretable.

(3) The transformed score was subsequently weighted by multiplying it by a coefficient that corresponded to its factor weighting.

(4) The transformed and weighted scores for all factors were then aggregated to form an overall composite index for the city in question. These totals were then used to order-rank the cities.

Having briefly outlined the overall design of the research underpinning the study, it is to the

composite indictor analysis that our attention now turns.

3. DATA ANALYSIS

As noted above, we systematically identified the key themes emerging from the fan focus groups in 2015 (Parker et al., 2015). These themes fed directly into the factors described below, which are considered important indicators of a 'great sporting city'. In what follows, we outline the composite indicator methodology through which the ranking of cities was determined. This process was completed in five discrete stages. First, a list of cities was created for inclusion in the overall composite indictor. Second, we generated questions for an online survey that solicited fan perceived satisfaction on each of our 12 factors (indicators) identified. Third, we used the fan survey results to apply weightings to the factors to establish the relative influence of each indicator in the overall composite index. Fourth, we used a combination of fan survey data and objective data from freely available sources, to measure each factor. Firth, using the weighting and measurements in stages 3 and 4, we calculated the overall ranking. Below we describe each of these stages in detail.

Stage 1: City Selection

There were a number of key stages in the city selection:

1) We took the latest Office of National Statistics (ONS) population figures (Annual Mid-year Population Estimate, June, 2015) and, where necessary the 2011 Census population figures, and deemed that a population of > 130,000 was an appropriate cut-off.[2]

2) Next, we removed any metropolitan areas that could not be classed as a city from the ONS population figures (e.g., Isle of Wight, Neath Port Talbot).

3) Next, we removed feeder cities to London (e.g., Slough, Wycombe), Manchester (e.g., Bury, Rochdale) and Leeds (e.g., Wakefield, Castleford), which are served by their larger metropolis.

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[2] The single exception to this rule was Exeter, which has a marginally smaller population than 130,000 (124,328), but that we deemed an important sporting city given the success and high profile influence of its rugby team, the Exeter Chiefs.

4) Finally, we removed a number of smaller cities on the basis that they have no professional football, rugby union, rugby league, or cricket clubs and therefore would be redundant in any analysis (i.e., nothing to score on; Warwick, Bridgend).

This process led to the final list of 49 cities that went forward for analysis.

Stage 2: Fan Survey

Having selected our cities, we then created the questions for an online survey to be distributed to sports fans within those cities between 11th June to 30th July. Before embarking on this fan consultation period, though, we knew that we would be able to collect data on 7 factors from freely available 'objective' data sources (viz., *value for money, participation, venues, choice, sporting history,* and *economic impact*), whereas we would rely on either a combination of 'objective' data sources and 'subjective' fan perceived satisfaction data (viz., *success*) or only 'subjective' fan perceived satisfaction data for the remaining factors (viz., *local talent, atmosphere, community, transport,* and *social/match day experience*). Hence, the survey had two main aims. First, we wanted to solicit fan perceived satisfaction for each of the factors that we relied upon subjective data (i.e., *local talent, atmosphere, community, transport,* and *social/match day experience, and success)*. Second, we asked each fan to rank all of the factors in order of importance (i.e., both objective and subjective) so that we could use this importance data as input in weighting calculations for our overall composite indictor. The relative weighting for each factor is listed in the *Factor Measurement and Weighting* section below. The demographics of the fan survey data can be found in Table 2.

Table 2. Demographics of the fan survey

City	Age							
	Total *n*	< 18	18-24	25-34	35-44	45-54	55-64	> 65
Aberdeen	101	9%	19%	18%	18%	17%	21%	17%
Barnsley	75	5%	27%	19%	19%	23%	16%	11%
Bath[10]	100	12%	11%	11%	11%	17%	20%	29%
Belfast	115	8%	16%	23%	23%	25%	16%	13%
Birmingham[8]	130	18%	25%	16%	16%	15%	14%	12%
Blackburn[17]	100	10%	16%	19%	19%	25%	14%	16%
Blackpool	102	2%	21%	18%	18%	12%	22%	26%
Bolton	100	7%	17%	23%	23%	19%	20%	14%
Bournemouth[12]	101	3%	5%	22%	22%	26%	23%	22%
Bradford[11]	101	12%	12%	16%	16%	22%	17%	22%
Brighton[9]	117	15%	14%	23%	23%	20%	12%	17%
Bristol	110	13%	21%	22%	22%	21%	12%	12%
Cardiff	115	16%	26%	19%	19%	11%	13%	15%
Gloucester[6]	107	1%	11%	17%	17%	22%	26%	22%

Edinburgh	125	13%	14%	23%	23%	22%	18%	10%
Coventry	101	10%	23%	20%	20%	16%	14%	18%
Derby	111	4%	14%	24%	24%	22%	12%	25%
Doncaster	100	7%	22%	17%	17%	21%	20%	13%
Dundee	101	13%	17%	20%	20%	21%	7%	23%
Exeter	103	13%	16%	14%	14%	17%	20%	20%
Glasgow	114	13%	21%	25%	25%	14%	18%	9%
Ipswich	102	4%	18%	18%	18%	24%	24%	14%
Hull	109	8%	21%	24%	24%	15%	17%	16%
Leeds[5]	112	9%	20%	23%	23%	20%	14%	14%
Leicester	108	11%	22%	23%	23%	15%	16%	13%
Liverpool[3]	131	21%	18%	20%	20%	17%	14%	10%
London[1]	202	22%	22%	24%	24%	13%	10%	8%
Luton	101	6%	22%	29%	29%	14%	15%	15%
Manchester[4]	147	24%	22%	19%	19%	16%	10%	10%
Middlesbrough[15]	106	7%	22%	16%	16%	16%	20%	20%
Milton Keynes	100	8%	10%	22%	22%	27%	14%	19%
Newcastle[7]	121	11%	21%	23%	23%	18%	15%	12%
Northampton	117	4%	18%	27%	27%	20%	14%	17%
Norwich	110	11%	28%	15%	15%	17%	17%	12%
Nottingham	113	25%	19%	19%	19%	19%	9%	10%
Oxford	104	19%	19%	17%	17%	16%	14%	13%
Peterborough	102	15%	16%	12%	12%	18%	23%	18%
Plymouth	112	5%	20%	13%	13%	22%	23%	16%
Portsmouth	100	7%	20%	21%	21%	14%	20%	18%
Preston	104	1%	13%	18%	18%	21%	24%	22%
Reading[2]	102	5%	17%	17%	17%	23%	21%	19%
Sheffield	106	10%	25%	17%	17%	16%	17%	15%
Southampton[13]	110	9%	22%	14%	14%	22%	14%	20%
Stoke-on-Trent	114	6%	11%	21%	21%	25%	20%	17%
Sunderland[16]	101	5%	11%	18%	18%	28%	26%	13%
Swansea	104	2%	13%	23%	23%	24%	21%	17%
Swindon	102	4%	19%	22%	22%	12%	26%	18%
Wigan	99	8%	13%	14%	14%	20%	27%	17%
York[14]	110	13%	15%	19%	19%	17%	22%	15%

Note: [1]Includes Inner and Greater London; [2]Includes Wokingham; [3]Includes Tranmere, Widnes and St Helens; [4]Includes Rochdale, Altringham, Oldham, Sale, Leigh, and Swinton; [5]Includes Castleford; [6]Includes Cheltenham; [7]Includes Gateshead; [8]Includes Wolverhampton, West Bromich, Walsall, and Moseley; [9]Includes Hove; [10]Includes North East Somerset; [11]Includes Keightley; [12]Includes Poole; [13]Includes Eastleigh; [14]Includes Harrogate; [15]Includes Stockton; [16]Includes Durham; [17]Includes Darwen and Accrington. Total n = 5,107.

Stage 3: Factor Weighting

From the fan survey, we obtained fan satisfaction ratings that are the basis for the measurement of our 6 'subjective' factors described in detail below (i.e., *local talent, atmosphere, community, transport,* and *social/match day experience, and success)*. Importantly, we also obtained a set of order-ranked importance data, which we used to inform the weighting of the factors in the overall composite index.

As in 2017 (see Standage & Curran, 2017), the 2018 composite indicator weighted different factors according to both fan reported rank-order of importance, and the nature of the measured data (i.e., objective vs subjective). We did so to consider the superior accuracy of objective information relative to subjective information, which is prone to sampling error. Based on the available data, then, our ranking assigned a ''star'' rating to each factor, using one, two, or three

stars ("★," "★ ★," or "★ ★ ★") to denote low, moderate, or high importance (Table 3). A one-star factor was an indicator measured using subjective data, which less than 5% of fans in the survey ranked as most important to a 'great sporting city'. A two-star factor was an indicator that had either; (a) more than 10% of fans ranking it as most important to a 'great sporting city' and was measured using subjective data, or (b) had more than 5% of fans ranking it as most important to a 'great sporting city' and was measured using objective data. A three-star factor was an indicator measured using objective data, which had more than 10% of fans ranking it as most important to a 'great sporting city'.

We assigned a weight of 1, 2, or 3 to each factor in concordance with its star rating. We then determined that the proportionate point values 4.80, 9.50, and 14.25 would yield a total of 100 points when summed over the 12 factors (5.04 points x 6 factors, 9.95 points x 4 factors, 14.97 points x 2 factors = 100 points). These point values have been rounded to the nearest decimal point here, but exact values were used in the analysis.

Table 3. Factor weightings

Factor	Star	Weight	Objective?	> 10% 1st preference	> 5% 1st preference
Value for Money	★ ★ ★	14.97	✓	✓	✓
Participation	★	5.04	✓	✗	✗
Local Talent	★	5.04	✗	✗	✓
Atmosphere	★ ★	9.95	✗	✓	✓
Community	★	5.04	✗	✗	✓
Transport	★	5.04	✗	✗	✓
Club(s) Success/Results	★ ★ ★	14.97	✓	✓	✓
Social/Match day experience	★	5.04	✗	✗	✓
Venues	★ ★	9.95	✓	✗	✓
Choice	★ ★	9.95	✓	✗	✓
Sporting History	★ ★	9.95	✓	✗	✓

Economic Impact	★	5.04	✓	✗	✗

Stage 4: Factor Measurement

In this stage of the overall analysis, we describe how we conceptualize and measure each of the factors that make up our composite index.

Value for Money (★★★)

Value for money was a key theme emerging from the focus groups as identified in 2015. We therefore retrieved data on the lowest full price adult home ticket from the professional football (men's and women's), rugby union, rugby league, and cricket clubs in each city. We then averaged these prices for all the clubs. To control for regional variations in purchasing power, we divided the average lowest full price adult ticket in each city by its middle (median) weekly per capita income using data from the Office of National Statistics (Annual Survey of Hours and Earnings, April, 2015). This function gave us the ratio of average full price lowest adult ticket price to median income.

Participation (★)

Opportunities for sports participation was another strong theme to emerge from the fan focus groups in 2015. We therefore retrieved information regarding the participation of adults in sport for each city. These data came from the Active People Survey (2017) for the English cities, the Active Adults Survey (2009) for the Welsh cities, and Sport Scotland (2007) for the Scottish cities. The data we retrieved provided a percentage of adults who participated in sport *at least once a week*. This percentage thus provided an indication of the level of adult sports participation for each city.

Local Talent (★)

Opportunities in a city for 'home grown' local talent to flourish emerged as a theme across the fan focus groups in 2015. We measured this factor using data from the fan survey described in Stage 2. Here, fans were asked to respond to a local talent item ("How would you rate the opportunity for young sporting talent from your city?") on a Likert scale from 1 (*Very Poor)* to 10 (*Very Good).* For each city, we took the mean response of the city's participants on this item in 2015, 2017, and 2018 and calculated the three-year rolling average as the as the score for the

local talent factor.

Atmosphere (★ ★)

Sporting atmosphere was another strong theme to emerge across the fan focus groups. As with local talent, we measured this factor using data retrieved from the fan survey described in stage 2. Here, fans were asked to respond to an atmosphere item ("How would you rate the sporting atmosphere and environment in the build up to the live matches in <city> you have attended over the past year [e.g. buzz in the city, local media coverage, city events, ambiance within stadiums, etc.]?") on a Likert scale from 1 (*Very Poor)* to 10 (*Very Good).* For each city, we took the mean 2018 response of the city's participants on this item as the score for the atmosphere factor.

Community (★)

Strong links between the local community and the sports clubs was perceived to be important to focus group participants in 2015. We therefore measured this community factor using data from the fan survey. Here, fans were asked to respond to a community item ("How would you rate the links between professional sports clubs in [INSERT CITY LIVE IN OR CLOSEST TO] and the local community [e.g., community outreach, localized community feel, family friendly, etc…]?") on a Likert scale from 1 (*Very Poor)* to 10 (*Very Good).* For each city, we took the mean response of the city's participants on this item in 2015, 2017, and 2018 and calculated the three-year rolling average as the as the score for the community factor.

Transport (★)

Focus group participants in 2015 were consistent in their view that good transport to and from venues were crucial to a great sporting city. We therefore took data from the fan survey to measure this factor. Here, fans were asked to respond to a transport item ("How would you rate the transport links [e.g., train, car, bus, tram, etc…] servicing the sporting venues you have attended in [INSERT CITY LIVE IN OR CLOSEST TO]?") on a Likert scale from 1 (*Very Poor*) to 10 (*Very Good).* For each city, we took the mean response of the city's participants on this item in 2015, 2017, and 2018 and calculated the three-year rolling average as the as the score for the transport factor.

Club Success/Results (★ ★ ★)

The recent success of the professional clubs in a city was important for focus group participants

in 2015. We therefore retrieved data on the win:loss ratio of the 12 month calendar period from June 2015 to June 2017 for the professional football (men's and women's), rugby union, rugby league, and cricket clubs in each city. For football, win:loss ratios for clubs in the Scottish and English Premier League, English Women's Super League, Scottish and English Championship, Scottish and English League One, Scottish and English League Two, and the English Conference were retrieved. For rugby union, win:loss ratios for clubs in the English Premiership, Celtic Pro 12, and the English Championship were retrieved. For rugby league, win:loss ratios for clubs in the Super League and the Championship were retrieved. For cricket, win:loss ratios for the County Championship (1 & 2) and T20 Blast for all major counties were retrieved. Alongside the domestic win:loss ratios, we also retrieved win:loss ratios for the major European championships (viz., Men's and Women's Champions League; Europa league; Heineken Cup; Challenge Cup; World Club Series).

As the data contained various levels of competition within sports (i.e., Premier League and Championship) it was necessary to weight the win:loss ratios according to their relative standing (so a win in the Champions League is worth more than a win in the Conference). The competition weights can be seen in Table 5. Following the calculation of the weighted average win:loss ratios, we then added a bonus weighting to the cities with a club(s) who had won a major trophy in the most recent completed season. The bonus weights can be seen in Table 5.

Table 4. Competition weightings for the club success factor

Competition	Weighting
Champions League (Football)	2.50
Women's Champions League (Football)	2.50
Heineken Cup (Rugby Union)	2.50
World Club Series (Rugby League)	2.50
Europa League (Football)	2.25
Challenge Cup (Rugby Union)	2.25
English Premier League (Football)	2.00
Celtic Pro 12 (Rugby Union)	2.00
English Premiership (Rugby Union)	2.00
Super League (Rugby League)	2.00
County Championship One (Cricket)	2.00
T20 Blast (Cricket)	2.00
English Championship (Football)	1.75
County Championship Two (Cricket)	1.75
Scottish Premier League (Football)	1.50
English League One (Football)	1.50
Scottish Championship (Football)	1.25
English League Two (Football)	1.25

Scottish League One (Football)	1.00	
English Championship (Rugby Union)	1.00	
English Championship (Rugby League)	1.00	
English Conference (Football)	1.00	
Women's English Super League (Football)	1.00	

As success is also relative to the fan perception (e.g., a lower win:loss ratio for Bournemouth fans could be perceived more favorably than a higher win:loss ratio for Manchester United fans), we incorporated fan satisfaction to the success/results factor. To do so, we asked fans to respond to a success item in the fan survey ("How would you rate the recent sporting success of the professional clubs in <city> you have watched live over the past year?") on a Likert scale from 1 (Very Poor) to 10 (Very Good). For each city, we took the mean 2018 response of the city's participants on this item as the subjective score for the success factor. We then transformed both the objective win:loss data and the subjective fan data and calculated a weighted average, with the objective data assigned 50% and the subjective data assigned 50% of the success factor.

Social/Match day experience (★)

Another theme to emerge from the fan focus groups in 2015 was the quality of social opportunities and experiences for fans at sporting events. To measure this factor, we took data from the fan survey. Here, fans were asked to respond to a social item ("How would you rate the variety and quality of socialising options [e.g., bars/pubs, shops, services, etc…] available at the sporting events you have attended in <city> over the past year?") on a Likert scale from 1 (*Very Poor*) to 10 (*Very Good*). For each city, we took the mean response of the city's participants on this item as the score for the social factor.

Table 5. Bonus weighting for major trophy (30% European cup, 20% domestic league title, 10% domestic cup)

City	Competition (s)	Bonus Weighting
London	Aviva Premiership (Saracens); Women's FA cup (Chelsea); FA Cup (Chelsea)	1.40
Exeter	LV Cup (Exeter Chiefs)	1.10
Hull	Challenge Cup (Hull FC)	1.10
Leeds	Rugby Super League (Leeds Rhinos)	1.20
Nottingham	T20 Blast (Nottinghamshire Outlaws)	1.10
Glasgow	Scottish Premier League (Celtic); Scottish Cup (Celtic)	1.30
Manchester	EFL Cup (Manchester City); Premier League (Manchester City)	1.30

Note: All other cities bonus weighted as 1.

Venues (★★)

The quality and capacity of the sporting venues servicing the cities emerged strongly as a focus group theme in 2015. The capacities of venues in a given city, though, are highly skewed by the population they service. Hence, this factor was measured using the ratio of the aggregate sporting venue capacity of the sporting venues in each city to the city population. To calculate this ratio, we retrieved data on the maximum capacities for the football, rugby union, rugby league, and cricket venues in each city and divided this aggregate by the city's population using data from the Office of National Statistics (Annual Mid-Year Population Estimate, June, 2015). Cities housing national venues (e.g., Wembley, Murrayfield) were allocated a 20% bonus weighting per venue, on top of their ratio of aggregate venue capacity to population, to reflect the opportunity of fans in that city to view national events. In addition, we also assigned the same weights for venues used to host matches in the 2015 Rugby World Cup. These bonus weightings are displayed in Table 6.

Table 6. Bonus weighting for national venues

| City	National Venue(s)	Bonus Weighting
London	Wembley; Twickenham; Lords; Olympic Stadium	1.80
Manchester	Old Trafford	1.20
Cardiff	Millennium Stadium	1.20
Glasgow	Hampden Park	1.20
Edinburgh	Murrayfield	1.20
Belfast	Windsor Park	1.20

Note: All other cities bonus weighted as 1.

As venues is also relative to the fan perception (i.e., quality of sporting venues more than simply capacity), we incorporated fan satisfaction to the venues factor. To do so, we asked fans to respond to a success item in the fan survey ("How would you rate the quality of the sporting venues at the matches you have attended live in <city> over the past year?") on a Likert scale from 1 (Very Poor) to 10 (Very Good). For each city, we took the mean 2018 response of the city's participants on this item as the subjective score for the venues factor. We then transformed both the objective venues data and the subjective fan data and calculated a weighted average, with the objective data assigned 75% and the subjective data assigned 25% of the venues factor.

Choice (★★)

In the focus groups, the range of available professional sports clubs emerged as a strong theme

in 2015. We therefore measured choice as the population adjusted number of professional football, rugby union, rugby league, and cricket clubs in each city. To adjust for population, we regressed the aggregate number of professional sports clubs in each city on its population to arrive at an expected number of clubs for any given population size (i.e., the regression line or line of best fit). We then took the residual for each city (i.e., the difference between the expected number of clubs and the actual number of clubs) to provide an estimate of whether a city has more (positive residual) or less (negative residual) professional clubs than should be expected for its size. This regression-based approach to population adjustment is visualized in Figure 1.

Figure 1. Relationship between city population and aggregate number of professional clubs
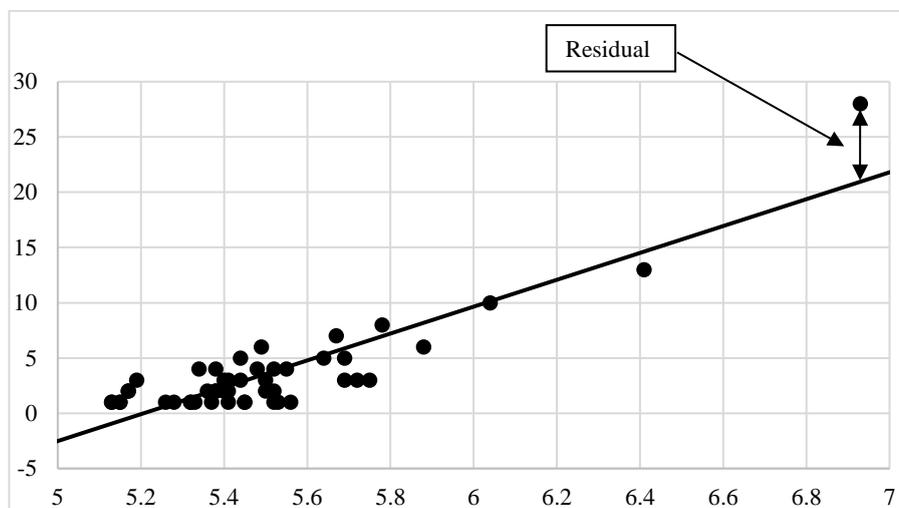
Sporting History (★ ★)

According to the fan focus groups in 2015, sporting history was a key factor in what constitutes a great sporting city. To measure this factor, we retrieved data on the major trophy haul of each of the professional clubs in each city and averaged these to provide an indication of historical success per city. We define a major trophy as league trophies for the top division of each respective sport (i.e., football, rugby union, rugby league, and cricket) and any domestic cups that are nationally competitive (e.g., FA Cup, LV Cup, Challenge Cup, etc.). We also retrieved data on major European and International trophies in football, rugby union, rugby league and cricket (e.g., Champions League, Heineken Cup, World Club Series, etc.). As with the club success factor, the data contained various levels of competition within sports (i.e., Premier League and League Cup). It was thus necessary to weight the average historical trophy haul according to their relative esteem (so a Champions League trophy is worth more than a League Cup). The weighted average of the aggregate historical trophy haul of the clubs in a given city

served as the sporting history factor. The trophy weightings are displayed in Table 7.

Table 7. Trophy weightings for the sporting history factor

Trophy	Weighting
Champions League (Football)	2.50
Women's Champions League (Football)	2.50
Heineken Cup (Rugby Union)	2.50
World Club Series (Rugby League)	2.50
Other European (Football)	2.25
Other European (Rugby Union)	2.25
English Premier League (Football)	2.00
Women's English Premier League (Football)	2.00
Celtic Pro 12 (Rugby Union)	2.00
English Premiership (Rugby Union)	2.00
Super League (Rugby League)	2.00
County Championship One (Cricket)	2.00
T20 Blast (Cricket)	2.00
English FA Cup (Football)	1.75
LV Cup (Rugby Union)	1.75
Challenge Cup (Rugby League)	1.75
English League Cup (Football)	1.50
Scottish Premier League (Football)	1.25
Scottish Cup (Football)	1.00
Scottish League Cup (Football)	1.00

Economic Impact (⋆)

The final theme to emerge from the qualitative analysis of the fan focus groups in 2015 was the economic impact of sport. We therefore retrieved data on the percentage of the overall workforce employed in the sports industry for each city with data compiled by Sport England (Economic Value of Sport − Local Model, November 2015) from the Business Register and Employment Survey (BRES, 2013) and the Scottish Household Survey (SHS, 2013). The Scottish and Welsh data was unavailable for the regions of Cardiff, Swansea, Aberdeen, Dundee, and Edinburgh. As such, the overall Welsh average was used for Cardiff and Swansea and the overall Scottish average employed for Aberdeen, Dundee, and Edinburgh.

Stage 5. Composite analysis and overall ranking

Once the weightings were assigned, and the measurement complete, the process of weighted-ranking could begin. This process comprised four stages:

1) We collected the raw data about the factors for each city and placed it in a database.

2) Since the data differed qualitatively from factor to factor, we transformed the raw data onto a standardised 100 point scale. To do this, we applied a transformation formula; 100 * (x - min)/(max-min) where x is the value of the raw data, min reflects the minimum raw value, and max reflects the maximum raw value. Once the data was transformed, each raw data point for each factor conformed to a uniform scale and was therefore interpretable. For example, if city x takes a score of 57 for the *transport* factor then, when transformed, 57% of the cities in the dataset fall below city x on the *transport* factor.

3) The transformed score was subsequently weighted by multiplying it by a coefficient that corresponded to the weighting assigned from the aforementioned survey analysis (see Table 3).

4) The transformed and weighted scores for all factors were then added together to form an overall total for each city. These totals were then used to rank the cities.

This process is schematised in Table 4:

Table 4. Hypothetical score calculation for city x

Factor	Weight	Raw data	Transformed score	Coefficient	Transformed and weighted factor score
Value for money	60%	0.05	100	.60	60
Club Success	30%	4.2	74	.30	22.2
Choice	10%	0.000009	22	.10	2.2
Total	100%			1.0	84.4

4. KEY FINDINGS

Manchester is ESPN's Greatest Sporting City 2018

Manchester emerged as ESPN's Greatest Sporting City 2018, rising 1 place from 2nd in 2017. This achievement owed much to Manchester's consistency in scoring well across the vast majority of factors. Indeed, Manchester scored in the top quarter of all cities for half of the factors and did especially well on fan satisfaction. Here, Manchester were the top city for success and place in the top 10% of cities on fan satisfaction with local talent and social experiences. The city's Football teams, Manchester City and Manchester United, had good excellent seasons with City winning the Premier League title. The city's Rugby Union side, Sale, equally performed well. The city also offers an impressive value for money (top 30%). Manchester's overall

performance ensured that the city had enough to just beat local rival Liverpool for the second time in our ranking. It also this year performed better than a number of renowned sporting cities, including London, Glasgow, and Cardiff.

Edinburgh top Scottish city and 3rd overall

Edinburgh emerged as the top Scottish sporting city in our analysis for the first time, ranking 3rd overall. This is a big achievement for Edinburgh and owes much to the cities impressive performance on community, value for money, and participation. The cities football teams and Rugby Union side had very good seasons and for this reason Edinburgh ranked in the top 15% of cities for success. Local rivals Glasgow reamin 6th overall for this year's ranking.

Cardiff top Welsh city and Swansea bottom

Cardiff was the top Welsh city, but dropped 10 places to 19th. Although the football team were promoted, the cities Rugby team had a poor season and Cardiff scored low on atmosphere, economic impact and success. The other big story for Wales was that Swansea finished bottom overall, dropping 21 places. This is likely because the cities rugby and football teams had poor seasons (Swansea relegated) and the cities score very low on success, economic impact, and participation.

Leeds finishes top in the North and North East

Leeds emerges as the top city in the North and North East region placing 5th overall (1 place up down 2017). Leeds' performance was largely a function of the consistency of Leeds Rhinos and Yorkshire County Cricket Club who despite not taking any trophies performed well. The city also performed well on atmosphere, community, and choice.

Blackburn rise 25 places to 8th overall

Possibly the most eye catching performance this year is that of Blackburn who enter the top 10 for the first time and rise 25 places to 8th. The cities football team, Blackburn rovers, were promoted this year and there is evidently a feel good factor around the city. Blackburn were the top city for atmosphere and scores in the top 40% of cities in match day experience, success, and participation.

Birmingham inside top 10 for first time and top city in the West Midlands

England's second city, Birmingham, emerged from our analysis in the top 10 for the first time,

rising 4 places to 7th overall. Birmingham scored well on venues and choice. Fans were also happy with opportunities for local talent and community links.

London top city in the South and South East

The Capital, London, placed 4th in this year's ranking – down 1 place from 2017. London's professional clubs performed reasonably well across the board without any major accolades. Yet scored poorly on choice and venues (both adjusted for population size) and the fan satisfaction remains modest when compared to cities in the North. This said, London still finished as the top city in the South and South East for the third year running. In this region, Portsmouth was next best in 21st.

Bath best in South West for the second time

Another disappointing year for the South West, none of its cities made the top 10. Bath was the best South West city, finishing 13th – an impressive 5 places up from 2017. It also beat Bristol, who had another disappointing year (17th). Bath's success was primarily due to the excellent value for money that the rugby club offers, the positive sense of community around the rugby club, and the high levels of physical activity in the city (2nd most active city).

Blackpool off the bottom for the first year

Blackpool emerged from our analysis in 40th position and this is first year that the city is off the bottom. Although the city has some way still to go to be ranked higher, this is positive move for the city that has had wretched luck in terms of sport in previous years.

Liverpool top football city

Perhaps surprisingly, Liverpool emerged as the top football city of 2018. LThis success owes much to the consistent high placing – especially on the football specific factors of atmosphere, community, and history. The other big football cities of London, Glasgow, and Manchester follow close behind.

Leeds top cricket city

The form and historical success of Yorkshire County Cricket Club ensured that Leeds was the again top cricket city of 2018. The other big cricket cities of Manchester and London follow close behind.

Bath top rugby union city

Bath emerged in our analysis as the top rugby union city of 2018. The excellent £10 cheapest adult ticket offered by Bath RFU meant the city well on value for money (1st). Fan satisfaction was also high with the city scoring well social/match day experience and community. The renowned Rugby Union city of Cardiff finished close behind in 2nd.

Leeds top rugby league city

Wigan placed as the top rugby league city in 2018. This was mainly due to the recent and historical success of Wigan Warriors.

Key Finding 15: Specific factor accolades

Alongside the overall headline findings, there were some interesting specific factor accolades. As in 2017, there was a broad dispersion of wining cities. Our winner, Manchester, finished top only on success (but performed very well on most factors). Reading scored highest on adult sports participation with 48% of its population participating in sport at least once a week. In another interesting finding, Norwich again finished highest on economic impact with 1.48% of its workforce employed in the sports industry. Liverpool emerged this year as the city with the most sporting choice. The venues factor was won by Glasgow for the first time and the history factor was also won by Glasgow. Blackburn scored highest on atmosphere and Southampton ranked highest for local talent. Finally, Milton Keynes won the value for money factor for first time. The individual factor accolades are listed below:

(1) <u>Local talent:</u> Southampton (34th overall ranking).

(2) <u>Atmosphere:</u> Blackburn (8th overall ranking).

(3) <u>Community:</u> Cheltenham and Gloucester (46th overall ranking).

(4) <u>Transport:</u> Newcastle (15th overall ranking).

(5) <u>Social:</u> Brighton (21st overall ranking).

(6) <u>Economic impact:</u> Norwich (31st overall ranking).

(7) <u>Participation:</u> Reading (31st overall ranking).

(8) <u>Choice:</u> Liverpool (2nd overall ranking).

(9) <u>Success/Results:</u> Manchester (1st overall ranking).

(10) <u>Venues:</u> Glasgow (6th overall ranking).

(11) <u>History:</u> Glasgow (6th overall ranking).

(12) <u>Value for money:</u> Milton Keynes (11th overall ranking).

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