

Conceptualizing ERP Application for Soccer Industry

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ABSTRACT--- *The purpose of this conceptual research paper is primarily to investigate the opportunities in restructuring in entertainment industry with the focus on soccer clubs. The reason is the rapid advances in operational units and project management of restructuring processes, the new technology integration in new economy, e-business, which has no barrier in ERP application. A clear example of this development is Football Club (FC) Manchester United (MU) in soccer industry.*

While soccer clubs (e.g. Real Madrid, Barcelona, Manchester United) appear to be simple enterprises, the complexity of their organizational processes provide opportunities in optimization through benchmarking with ERP applications in service industry.

From the literature, we learnt that a number of business processes at professional soccer clubs are compatible with the business processes at service industry. This has been the basis for a conceptual study on application of ERP (enterprise resource planning) business processes.

Keywords--- Conceptualization, ERP Applications, Business Processes, Soccer Industry, Restructuring.

1. LITERATURE REVIEW

The literature study shows that English premier ship clubs have been trying to understand the business processes for some time. In fact this is the area that we address as peculiar and different to any other ongoing research studies in ERP implementation at various organisations.

From literature it does not appear to be a comprehensive research study in logistics of soccer clubs.

The current emphasis in pursuing success lies on the possession of top talents and trainer(s) in the team. Of course, there are some exceptions. A successful team can exist without a successful financial position. For example, Rayo Vallecano and Alaves in Spanish leagues moved from the 2nd division to UEFA Cup finals in late 90s. This paper investigates for factors other than financial position and consequently the presence of the top players in a team that can also contribute significantly to the success of a major soccer club in international leagues.

Davies (1995) used England and Wales Football premier leagues dataset on season-by-season team performance and gate revenue for the period between the 1946-7 and 1993-4 seasons. He concluded that; the use of revenue data offers two advantages over attendance.

First of all, there is an easier access to financial resources which grant clubs to attract better players so as to improve performance, and then revenue is a more appropriate measure of financial strength than attendance.

From the point of view of managing any organization it is important to establish the relationship between the inputs used in production and their relative contributions to output.

Sports' teams are similar to other enterprises in this respect attempting to provide a 'product', referring to a victory, by employing and combining various inputs (i.e. the skills and various team competencies).

A production function can serve as a basis to determine players' salaries, as well as helping to identify those areas in which a team's opportunities for improvement lie, including the type of player that should be acquired to strengthen and improve the team and similarly the current players that need to be shed. All these sports' team decisions are made, albeit informally, in the context of a production function.

The context of production function is practiced in the form of OPTA index in the English premier ship football. This index breaks down the performance of the team to the performance of individual players.

Statistical tools in evaluation of the players and predictions of team success played a major role in previous research studies on team success and team performance.

OPTA Index is the matches' observations data in ball-oriented system on shots at goals, passes, tackles and clearances, dribbles and runs with the ball & free-kicks awarded, it provides extensive data for statistical analysis generating production function models and coaching efficiency models (Thomas, 2000).

Club Performance, Revenues and Economic Results

The evidence for the relationship between sports performance and revenue appear clear in English football (Barajas, A, 2005). For the economic results, it is worth observing the effect of sports performance on revenues and the relationship of these revenues with costs. Although both turnover and expenses depend on managerial skills, the expenses are more easily controlled than turnover because income relates to the consumer demand.

Deloitte and Touche (1999) carry out analogous studies comparing, by means of a non linear regression, the total incomes of Spanish football clubs in the first division with their ranking at the end of league championships in seasons 1996/1997, 97/98, and 98/99. In Scottish Premier League the relationship between economic results and sports performance is less direct and more complex than we might expect. In analysis of relegation, Deloitte and Touche suggests that the levels of attendance and states, without a solid base, that in the season which follows relegation fans continue to attend matches through force of habit.

Pricing, Habitual Attendance, and Revenues

Spenner and Fenn (2004) applied the model of Becker et al. (1994) to National Football League and found that the sports league is a habit forming product. Conceptually, fan loyalty may create habitual behaviour, leading to a dynamic model specification of attendance demand (Won, D.C., 2008). Using the two-period model, Ahn and Lee (2007) showed that inelastic pricing is consistent with team owners' profit maximization decision if attending sports games is habit-forming and if the inter-temporal elasticity of substitution (IES) in the attendance at sports games is small. Using both linear and non linear models with respect to the infinite horizon, Won and Young (2008) derived a stationary attendance level and price, as well as the paths of optimal prices and attendance preceding the stationary point. Then they compared these results with those of a static model that assumes the absence of habit formation.

Our theoretical finding and simulation results imply that; i) inelastic pricing is consistent with lifetime profit maximization (the confirmation of Ahn and Lee, 2007); ii) in the presence of attendance habit formation, both the long run equilibrium price and the level of attendance are greater than the corresponding static profit maximizing price and attendance; iii) the dynamic equilibrium paths indicate that a team owner lowers price during early periods, to induce greater present and future attendance; and raises it in the long run to take advantage of habit persistence in attendance; and (iv) while the dynamic price path for the case of strong habit formation begins below that for weak or absent habit formation, it increases rapidly and eventually terminates in a higher price.

Team Success Based on Players' Income

The economics of English league soccer bear some resemblance to the economics of the team sports in U.S. In other words, the method of analysis can be benchmarked for similar sports in the same industry. In a survey established for 39 premierships clubs, a performance and club wage bill (1978-1993) indicate that players earn wages that reflect their talents, and club expenditure on players is a fairly reliable indicator of talent and club performance, i.e. average league rank as a team in the premierships.

Assuming the players' income factor is constant; the same study shows that major clubs with a higher number of black players have a higher ranking Premiership league (Szymansky, 2000).

Production function models estimate aggregate team performance or the success over a season in the English premierships league.

The relation between team performance & revenue was investigated using co-integration & causality tests. The selection criterion for the test was the unbroken league membership between 1946 and 1994 (Dobson, 1998).

The dependence of performance on revenue seems to be greater for the smaller clubs than for the larger clubs. The empirical results support the fact that team success is concentrated for rather wealthy clubs at premierships leagues in England.

The revenue as a full context does not represent the successful performance of a club. The length of the club life time in business is part of the selection criteria for the test.

The influence of the lagged revenue on current performance is greater than the influence of lagged performance on current revenue (Audas, 1994).

The cost breakdown by a major Scottish premierships club shows approx 70% on players' salaries and that of staff and 30% on any other overhead expenses.

The data show the importance of revenues from media rights, sponsors, tickets as well as the contemporary changes in soccer business with the important role of management team, supply chain and commercialization process (Cain, 1987/2000).

A major sponsor, Vodafone, financed approx. 6% of the total Manchester United market value (GBP 500 millions) on the London stock exchange over four years while Orange financed the Formula I team for double the amount over three years.

Tottenham Hotspur was the first major club to float in the stock market in 1983 followed by Manchester United in 1991 (Szymanski, 2000).

Real Madrid with a market value of GBP 105.2 millions, second after Manchester United, and indebted for over US \$ 110 millions, spent US \$ 60 millions to buy Luis Figo from FC Barcelona in 2000.

On the basis of Manchester United Business characteristics as an entity, some dependent measurable indicators in club success can be drawn as; Revenues, Profits, Number of fans, Franchising capacities and Sponsorship.

For other sports in U.S. in particular, there are studies on production function, performance evaluation, and correlation analysis.

Similar studies took place on the performance evaluation, production function and coaching efficiency of the top teams at English premier ship league.

In a study performed by the University of Chicago a logarithmic chart of average league ranks versus wage expenditure relative to average (logarithm) showed a direct relation between the players' incomes and the ranking of the soccer club in the English Premier ship leagues.

In the English premier ship, the injuries cost the clubs GBP 40 millions while statistics showed 10% of a club's squad were unable to play at any time. This figure indicated what a club would require to compensate from its allocated budget.

Under the new EC legislation, players' wages will rocket as clubs use the money they would have spent on transfer fees to induce players to stay, wages increased by 30% a season in the UK and wage packets of GBP 100000 a week were inevitable, say football analysts at Deloitte & Touche.

Any club at the top of the premier ship league is paying two third of their turnover in total wages.

The managerial efficiency scores were used as covariate in an estimated managers' survival function in which the duration of survival was found to be positively related to managerial efficiency.

One element of team performance that was completely beyond the soccer managerial control is the quality of the playing squad that could be inherited at the start of his spell.

To control for that element, the difference between the team's current league position and its initial position when the manager first took charge is included as a covariate in the hazard function.

With this formulation, the quality of squad inherited was reflected in the initial league position, and the manager was assumed to take either full credit or blame for any subsequent positional improvement or deterioration.

Possible criticisms for this formulation is the fact that;

First if the outgoing manager is underperforming at the time of termination, the initial league position may undervalue the strength of the playing squad inherited by the incoming manager. The latter, however, still faces the task and (if successful) takes the credit for reorganising and restoring confidence or motivation to a squad that was previously underachieving.

Furthermore, formulation does not control for the extent to which different manager could have access to funds to spend on players' wages and in the transfer market, other than those generated internally through the impact of team performance on gate revenues.

The manager's ability to control match and league outcomes is surely constrained by chronic unpredictability surrounding; fitness, performance and interactions of the players.

The process that determines the team productivity is opaque while results are transparent.

Each match is a zero-sum game and the results are ranking in the league. Promotions and relegations between divisions also create substantial and lasting rewards and penalties for success and failure, respectively.

For each club as a firm, the typical consequences of inadequate performance are not the loss of customers, internal reorganization, liquidation, or acquisition by competitors. All clubs retain a base of highly regular spectators.

Constraints to Restructuring Soccer Clubs

The rigid technology associated with the soccer club's main product tends to impose similar uniformity upon the club's organization and structure.

Despite what is generally perceived to be a very high and price inelastic demand for the services of professional football teams, the clubs themselves seldom make money.

Modelling team Success and Club Success in Professional Soccer

The team strength scores are used as covariate in an estimated team success function, wherein the team success is proved to be positively related to management quality.

Causal empiricism suggest that a run of poor results over a relatively short period within a season can have a far more damaging impact on the manager's survival prospects than would be suggested by its full season win ratio or efficiency score.

Organizational Performance & Managerial Turnover period 1972-1997 (Audas, 1999)

Short term fluctuations in performance strongly influence the involuntary termination hazard.

The latter is also heavily dependent on the team's current league position relative to its position when the manager took charge, and on the win ratio over the entire pull.

The match-level data set allows identifying the link between very short term fluctuations in team performance and managerial survival.

The effect of a change of manager on organizational performance is a well-researched topic, despite constraints on availability of suitable data and the difficulties encountered in defining unambiguous measure of inputs and outputs.

In this context, Lieberson & O'Connor (1972) established a prototype for much subsequent work on managerial succession effects, by investigating the links between changes of chief executive officer and subsequent movements in performance indicators, such as sales profits.

2. CONCEPTUAL MODEL

We define two types of success defined in this conceptual study; successful soccer club and successful soccer team. Although these two types of successes are interrelated, in modern soccer they are recognized from each other in terms of business and sport. A successful soccer club can provide the grounds for a successful soccer team. The club has to be primarily financially successful as an entity. This criterion of financial strength, or capability, is almost a prerequisite to the formation of a successful team. This criterion brings the operation management, structure and logistics of processes in a major soccer club in picture.

For example, Real Madrid makes a distinguished exception in this regard. FC Real Madrid as the most indebted soccer club of the world in late 90s, was financially supported by other institutes rather than successfully running a profitable business. The same situation applied to FC Valencia and other soccer clubs in Spain. Later, Real Madrid as an entity with a high debt to equity ratio succeeded in generating substantial revenues from national and international leagues. We built two constructions for the two independent hypotheses and one integrated hypothesis; Team Success & Club Success, and Management Quality.

The independent measurable indicators from these two constructions are listed in the scenarios I to IV.

The medical team (i.e. selected by the management team as support and advising staff), the audience (fans), the season (weather), sponsors (e.g. their financial contribution), culture (e.g. measured with the fans) and the environment (e.g. the pitch, fans and the weather) are among the dependent indicators.

The purchase of famous players and trainers by clubs counts also as a form of publicity. The source and size of revenues of a club are related to the success of its team (e.g. in a national and champion leagues). This is generated in principle from the public media, ticket sales and the sale of the players.

The model consists of the management team professional knowledge described as technical director, coach (his history and his references) and president director (e.g. business network, supply chain, procurement skills, and etc). And the proposed model represents the management of a typical major successful club in Europe.

The barometers in management quality, players' talent and degree of success of a soccer club (e.g. ranking in national and international leagues) will be indicated using a scale of 1 - 10.

Club Success = f (number of participations in the international leagues over the period of five years, e.g. Manchester United, financial position of the club and its value ranking in the entertainment industry, e.g. Manchester United is ranked as number one in generating revenues.)

Management Quality = f (technical director (e.g. full time years in physiology with a no. of years' experience in other professional clubs, trainer (e.g. cooperation with technical director and an international proof record of success in coaching, president (e.g. negotiations skills with network capacities)

Team Success= f (sum of the quality individual players, no. of years of service with professional leagues on the same position, top 10 % and bottom 10 % of the national leagues)

Team Strength= f (no. of core players over the three years period, no. of top talent players with transfer fees above GBP 20 million, No. of injuries over the period of three years, No. of the coaches over the three years period, no. of nationalities over the three years period)

In order to design the score models for the two constructs, the indicators are given values (weight factor), i.e. one to ten score models.

Team Success Based on Coaching Quality

We take the coach/players and situations/games as two opposite poles wherein these two poles have to get together in order to make a successful team.

Thus training situations should be as close as the actual game situations. Equally the understanding and the relation between the coach and the players should be as close to each other as possible.

Most literatures showed that major focus of both research and commercial efforts were on players' income as the team key success factor.

The club success is directly related to possession of top players in the team, in which the players' talents are rewarded with their incomes.

The impact of players' talents, players' salaries and the coaching performance in team success and its ranking is empirically correlated in various literatures.

The emphasis of this conceptual study is on the operation of management team and related business processes in a major soccer club. The purpose is to find the optimal operation for a major soccer club to boost its performance as an entity and as a team in national and international leagues.

The models derived in this study suggest that both team success and club success as independent constructs are related to the management quality.

For the measurement of management quality, we can suggest that the index is weighted equally by three decision making organs; president, technical director, and the soccer coach.

Each organ has a 30% share in the success and failure of the team and/or club success.

The independent variables in this model of team success are related to players' performance in this model.

Club & Team Success Performance Concept;

Regression Analysis

Club Success:

Revenue of clubs, γ ; Wages, χ

Team Success:
Club Ratings, γ ; Management Quality, χ

This study proposes a methodology based on regression analysis of the independent variables against dependent variables.

The measurement of management quality can be related to the dollar value of the coach in the market. Then a correlation coefficient for regression lines can be drawn.

Hypotheses

Hypothesis 1

Team Success

The management team is defined by the management team (technical director + coach and the president) of the soccer club.

The hypothesis of team success is evidenced by a higher proportion of the variation in league performance which is attributed to the management quality and team strength.

Team success is characterised by ranking at national and international leagues which is directly dependent on the team strength. Team strength is in turn based on measurable indicators on players' talents and team formation.

The combination of the two elements can result in successful and unsuccessful scenarios in the following forms;

Successful Team

- Moderate team strength and high management quality
- High team strength and high management quality
- High team strength and low management quality

Unsuccessful Team

- Moderate team strength and low management quality

Management
Quality

High

Successful I	Successful II
Unsuccessful III	Successful IV

Low

Moderate Average High
Team Success

Hypothesis 2

Club Success

The hypothesis of club success is evidenced by a higher proportion of the variation in club performance which is attributed primarily to management quality and players' qualities (players' talents).
The combination of the two elements can result in successful club in the following forms;

Successful Club

- High club success and high management quality

Unsuccessful Club

- Low management quality and moderate club success
- Low management quality and high club success
- High management quality and moderate club success

Management Quality

High

Average

Low

Unsuccessful I	Successful II
Unsuccessful III	Unsuccessful IV

Moderate Average High
Club Success

Hypothesis 3

Club Success and Team Success

Thus the combination of the hypotheses 1 and 2 results in the hypothesis 3, i.e. the implication of success in both as a club and as a team is only attributed to high management quality and high team strength and high financial strength.

The hypothesis 3 is supported by the evidence of clubs (e.g. FC MU) a leading edge in sport industry worldwide. This fact is owed to its top quality management and team strength providing a sustainable team success and club success at national and international leagues.

3. CONCLUSION

We reviewed major part of literatures on; players' salaries versus team performance, the importance of sponsorship, marketing and advertising, commercialization of soccer teams, necessary contemporary changes in soccer business, i.e. recognition of the business processes such as procurement, marketing and management skills, the role of management in success or failure of the team and the club, the empirical correlation of team production function, coaching efficiency and

team success, estimating the demand for professional team sports, trying to identify the objective function of professional clubs, and a few papers attempt to link the analysis of supply and demand conditions.

In this conceptual study, we defined the management quality as key success factor in team club success. We also defined the management quality as integration of performance by management team. Optimization of business processes at a soccer club is a tool in improving management quality. The hypothesis of club success is evidenced by a higher proportion of the variation in the club performance which is attributed primarily to quality of management and quality of players.

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