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Introduction

Until recently, most mega sports events were held by wealthy industrialised countries. Because of the high costs involved in the preparation of such projects, insufficiently developed sports and other infrastructure and the absence of appropriate legal basis, hosting such events was beyond the reach of developing countries. The beginning of the 21st century brought significant changes in this respect. On the one hand, countries with relatively weaker economies, aware of the benefits involved, submitted their bids more readily. On the other hand, institutions responsible for the selection of the host country began to promote less wealthy countries or those in the process of economic transformation, in order to provide a stimulus for development. Within less than a decade there have been a number of examples of sporting event hosts that confirmed the current trend, such as: Euro 2004 in Portugal, 2008 Olympic Games in Beijing, the decision concerning the staging of the FIFA World Cup in 2010 or, finally, Euro 2012 in Poland and Ukraine.

The different approaches to stadium management adopted by the individual cities have been presented in this paper. In this respect particular importance was attached to the sources of income that will enable maintenance of these venues and pay off the enormous debt incurred by the cities in connection with their preparation.

The key characteristics of the arenas and the sources of their financing

From among the arenas to host the 2012 European Championship only the Lech stadium in Poznań was actually in existence in 2007. It was undergoing redevelopment not necessitated by awarding of the Euro organisation to the city. There were also 2 other stadiums in place (the city stadium in Cracow and the Silesian Stadium in Chorzów) which hoped for the award of the Euro 2012 back

in 2007. However, the candidatures of Cracow and Chorzów were rejected by the UEFA and ultimately those facilities could not be qualified in the Euro 2012 stadium infrastructure. All other stadiums, i.e. in Warsaw, Wrocław, and Gdańsk, existed only on paper, in the form of preliminary designs (Table 4.1).

Table 1.

Characteristics of the stadiums developed under Euro 2012 programme in Poland

Stadium location	Stadium name	Scope of works conducted	Capacity	Execution [in months]	Handed over for use in
Gdańsk	PGE Arena	erection	43 615	31	July 2011
Poznań	City Stadium in Poznań	redevelopment	43 098	23	September 2010
Warsaw	National Stadium	erection	58 500	38	December 2011
Wrocław	City Stadium in Wrocław	erection	44 308	36	September 2011

Source: the author's own study.

The largest of the all, i.e. the Warsaw stadium, earned the opinion of the most complex and advanced structure to be erected in connection with Euro 2012 from the very beginning. It was planned to replace the former Decade Stadium in Warsaw. Ever since its erection the stadium has become a hallmark of the developing capital city. Its patriotically symbolic facade brings to mind the red and white flag flapping in the wind.

Execution of the stadium investments went on without any major disturbances. The most serious problems were encountered at the City Stadium in Wrocław. The investment stalled for a while because of contract termination with the first contractor, Mostostal Warszawa. The Max Bogl company, which took over, made up for the delay and completed all phases to the plan. All four facilities were handed over for operation at least six months before the onset of the tournament finals. The redevelopment of the Poznań stadium took least time. Construction from the scratch, on the other hand, was more time consuming. The National Stadium in Warsaw took the longest to complete (more than three years). The ground piling process alone for that largest of the facilities under construction lasted 6 months.

All the listed facilities share the feature of multifunctionality reflected in their extensive auxiliary commercial facilities. The functions are described in detail in subchapter 4.3.

All four stadiums Poland prepared for the Euro 2012 were financed from the public funds. The respective proportions between the centrally-provided funds guaranteed directly from the state budget and the funds from the municipal budgets of individual cities are presented in table 4.2. The table reveals that except for the National Stadium entirely financed from the central budget, the preparation of all other arenas was based mainly on the funds from the host city budgets. This means that the cities are the owners of the facilities and as such they have been burdened with the responsibility for the maintenance of the arenas after the Euro 2012. The substantial share of the local governments in financing the sports facilities stems indirectly from the fact that the actual expenses were larger than the original projections. The funds provided from the state budget were determined in fixed nominal amounts back in 2008.¹ The expenditure forecasted at the time on preparation of each of the stadiums was lower, which automatically translated to a higher share of the central financing. The most severe blow of the disproportion was suffered by Wrocław, where the actual local expenditure exceeded the original assumptions by nearly $\frac{3}{4}$ parts.

Table 2.

The expenditure connected with the preparation of the stadiums for the Euro 2012, and the sources of their financing

Stadium	Central budget		Local government budget		Total expenditure incurred [PLN mln]	Expenditure forecast in 2008 [PLN mln]	Actual to forecast expenditure ratio
	[mln PLN]	[%]	[mln PLN]	[%]			
Gdańsk	144	16.7	718.30	83.3	862.30	684.0	126.1%
Poznań	110	16.3	565.56	83.7	675.56	537.0	125.8%
Warsaw	1914	100.0	0	0	1914.00	1220.0	156.9%
Wrocław	110	12.2	794.22	87.8	904.22	521.1	173.5%

Source: The author's own study based on the data published by Ministry of Sport and Tourism.

¹ Preparation and implementation of Euro 2012, Resolution of the Ministry Council No. 143/2008, dated 24 June 2008.

Since 2008 the estimates for the construction the stadiums had been changing continuously. This was a major obstacle in the establishment of specific sources of funds and the necessary amounts obtained from those sources. In 2012, despite the advanced stage of construction works, all host cities apart from Warsaw were still in the process of completing their final lists of sources of finance for the projects underway.

In the case of Gdańsk, Poznań, and Wrocław, the cities' substantial share in financing stadium preparation works, amounting to over 80%, required obtaining funds from external resources. Each of the three cities adopted a different solution in this respect: a forfaiting agreement, bond issue, and bank loan. The instruments are detailed in table 4.3.

The most innovative solution was adopted by Gdańsk. In the case of that city it was more difficult to obtain a loan because of the risk of exceeding the statutory debt limit of 60% of the local governments' revenues. Therefore, an alternative method of venue financing was sought. The city chose forfaiting, which is a relatively common method of financing of businesses, similar to factoring. However, it is less commonly used by local government units in Poland, particularly on the scale employed in the case of Gdańsk. It might be interesting to look at the mechanism on which the whole operation was based. The procedure is presented in Figure 4.1.

Table 3.

Details of the earmarked external financing obtained by the host cities in preparation of the stadium facilities

City	Source of financing	Financing details
Gdańsk	Forfaiting	<ul style="list-style-type: none"> – selling of receivables due to city of Gdańsk – BIEG is the debtor, – purchase price: PLN 375 million, – grace period – 3 years (until 2012) – the receivable maturity term – 15 years (until 2024) – cost – WIBOR 3M + margin
	Revenue Bonds	<ul style="list-style-type: none"> – value of the debt instruments – PLN 94,5 million,
Poznań	Bank loans and bond issue	<ul style="list-style-type: none"> – value of the debt instruments – PLN 540 million, – the instruments were reached for repeatedly, depending on the advancement in individual investment tasks under the adopted investment programme, – maturity terms – maximum 15 years,

		<ul style="list-style-type: none"> – grace period for loans – no longer than 7 years, – cost – WIBOR 3M and WIBOR 6M + margin of max. 1 p.p.
Wrocław	Investment loan agreement between the city and the consortium of BRE Bank, ING Bank, and Nordea Polska	<ul style="list-style-type: none"> – loan amount – PLN 500 mln, – lending period – 14 years, – grace period – 2 years, – interest rate – WIBOR 3M + margin of 0.99 p.p.

Source: the author's own study.

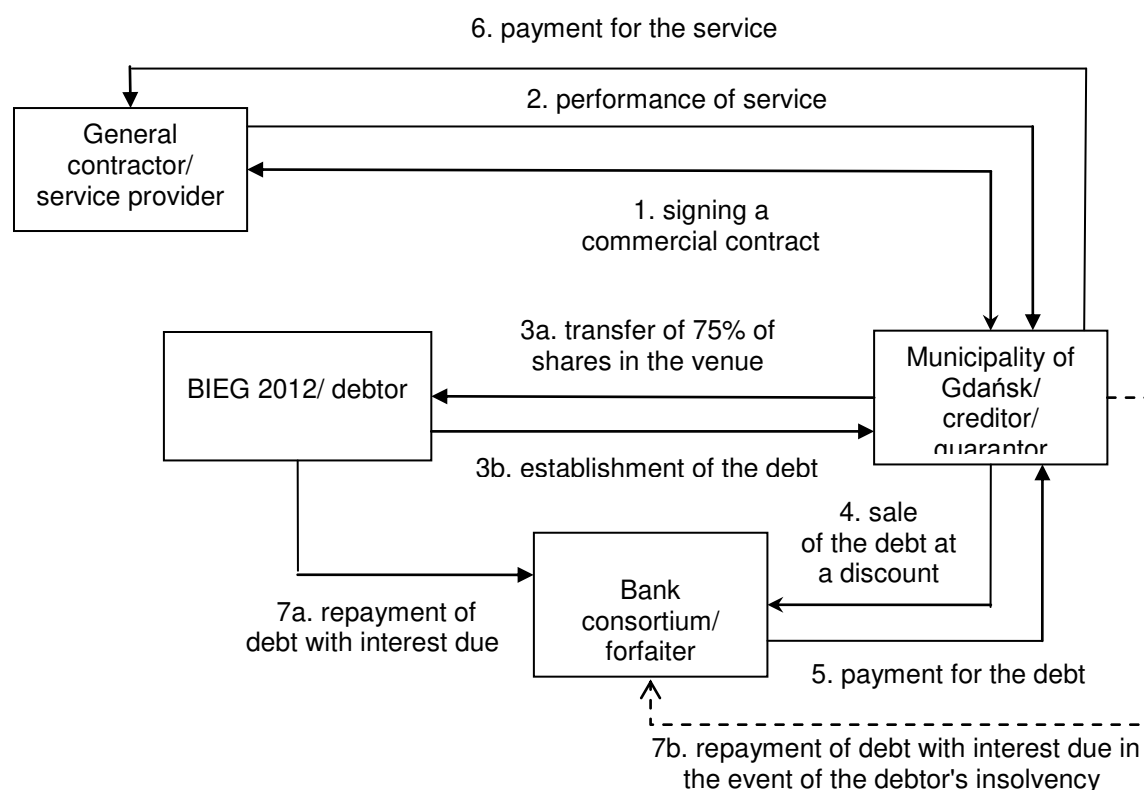


Figure 1. Forfaiting mechanism used in the construction of the stadium in Gdańsk
Source: Author's compilation.

The most important element of this puzzle was the transfer of ownership of the stadium from the municipality to a municipal company BIEG 2012. After this operation Gdańsk was holding only 25% of the shares. As a result, BIEG was obliged to pay its share of PLN 375 000 000 and transfer these funds to the municipality. As the company did not have such funds available, the municipality decided to sell this debt to Bank Pekao SA. That institution, under a forfaiting agreement, repaid the debt to Gdańsk, reduced by an appropriate discount, which made it possible to pay the contractor for the construction of the stadium. In exchange, BIEG is obliged to pay off the debt to the banks in instalments for the next 15 years. Initially, only interest – ca. PLN 26 000 000, but beginning from December 2012 – principal and interest payments of ca. PLN 43 000 000 per year. Altogether, for the PLN 375 000 000 provided by the

banks, BIEG has to repay ca. PLN 600 000 000. The interest rate depends on the WIBOR rate and now totals ca. 7% including bank margin. Thus, BIEG became a kind of “financial vehicle”, used by the city to obtain the required funds and simultaneously ensuring tax effectiveness of the project.

The forfeiting arrangement does not transfer the risk of insolvency to the forfaiter. The stadium was a risky business for the banks, so the venue was not even encumbered with a mortgage. BIEG was not a sufficiently credible partner for the lending consortium, so under the agreement the municipality is responsible for timely repayment of debt in the event of difficulties. Should BIEG stop repaying its debt, the forfeiting agreement would be terminated and the municipality would have to pay off the debt with interest accrued within the specified time limit. That is why Gdańsk continues to support the municipal company, aware that BIEG's troubles will in fact mean difficulties for the city. Support is provided in several ways.

First, the municipality decided to supply capital to the company every year. For example, in December 2012 Gdańsk acquired BIEG's shares for ca. PLN 35 000 000, which allowed the company to pay the instalment due to the consortium. The municipality also supplies other links in the chain financing BIEG's activities:

- pays for promotion of the city to the football club Lechia Gdańsk, which plays matches in PGE Arena and leases the stadium from the operator, which in turn supplies BIEG;
- pays to the operator for advertising during major events held in the stadium.

It is therefore difficult to say whether the choice of forfeiting by the municipality of Gdańsk was the best possible choice from the financial point of view. The city bears the entire financial risk, which is only apparently distributed over the newly established entities. The chief advantage is the somewhat different approach to forfeiting in terms of local government debt.

Wrocław and Poznań resorted to more traditional forms of financing. Wrocław consciously resigned from bond issue opting for a bank loan. The decision was mainly driven by the restrictions built into the Act on Bonds. The loan was found to be a simpler instrument in terms of both the process of accumulating the contract-related documentation, and in the funds disbursement

and repayment (i.e. the disbursement and the contract-required and law-required documentation). The aspects which weighed on the decision included the option of early loan repayment which does entail additional costs, as would have been the case with bond redemption before the contractually specified date.

Modernisation of the City Stadium in Poznań was one of the investments the city pursued in preparation for the Euro 2012. The funds for implementation of the investment programme came largely from loans, typically obtained for the entire investment programme as a whole, and not for individual projects. Since the stadium project took several years to complete, it was financed from numerous debt instruments. Over the time, the city took loans and issued bonds of the 15-year maturity type, though in practice the crediting term did not exceed 10 years.

The approach of the host cities to the issue of managing the stadiums following Euro 2012

The time of true test for the host cities came after the tournament finals ended. Management of huge facilities generating high maintenance costs is not an easy task. The hosts of earlier events of the type have already learnt the fact. Let us take Portugal, the host of the Euro 2004, for an example. The cities which had financed the construction of the stadiums from the public funds experienced grave problems with retaining their profitability after the Championships. The problem grew to such scale that the government of Portugal put forward the idea of pulling down some of the stadiums, the generators of the highest costs, so as to reduce the budget expenditure [Zawadzki, 2010, p. 176].

Building the stadium business plan begins with selecting the operator to be in charge of commercialising the facility. The track record of the operation of the Euro 2012 dedicated facilities, though still short, shows that effective management of sports arenas is not easy. This is evidenced by the rapid succession of stadium operators in Gdańsk and Wrocław, as well as several dismissals of successive Presidents of the National Sport Centre (NCS) – the company acting on behalf and in the name of the State Treasury and responsible for execution of the tasks related to the construction of the National Stadium in Warsaw and unofficially its operator up to almost the end of the year 2012. Since 2013, the function has been taken over by PL 2012 +.

The fact symptomatic of Gdańsk and Wrocław is that the cities have resigned from cooperation with private investors giving preference to municipal companies. This is contrary to the trends observed in the United States or Western Europe, where sport facilities of that scale end up almost exclusively in private hands, typically specialised companies or sports clubs. Both Gdańsk and Wrocław made their decisions facing ineffective management of the facilities by Lechia Operator and the American SMG, respectively.

Poznań decided to entrust the management of the stadium to the consortium formed by Lech Poznań SA and Marcellin Management. At the moment, it is difficult to say which concept of the operator selection will prove best in the Polish reality. A comprehensive strategy to rule the use of the facilities is only in development. Nevertheless, one can identify the catalogue of the sources of income the operators put hope for. The options are connected with sports and non-sport activities, as well as funds from sponsors.

Sport events as a source of current financing of the stadiums

The prime source of financing is seen as organisation of sports events, football matches in particular. Except for the National Stadium, the other three arenas have been out at the use of football clubs. The fact indicates that in spite of the multifunctionality of the facilities, the funds earned from the fans are assumed to remain the regular and important source of income. In practice, football clubs transmit contractually specified amounts to the operators, thus becoming a peculiar intermediary between the fans and the operator. Out of the analysed clubs, Lech Poznań is the only one to have disclosed the fee paid. The charge is made up of two components: the fixed amount of PLN 3.1 million a year, and the variable portion calculated as 7.5 percent of the income generated on match days. The two components in aggregate add up to the total fee of ca. PLN 4 million per year.

The National Stadium finds itself in the worst position, as it cannot count on support from any football club. The use of the arena for cup tournament matches may also pose a problem because of the tough safety requirements. The only hope for using the stadium to its designation lies in matches of the national representation. After the Euro 2012, the Prime Minister, Mr Donald Tusk, himself said he was pondering a legislative solution to the issue. The view has found support from Zbigniew Boniek, the newly appointed President of Polish

Football Association (PZPN), who believes that all score-bearing matches of the national team should be played in the Warsaw arena.

In the case of the other stadiums, relying on funds from football clubs carries a serious risk of insufficient attendance at league matches. The UEFA requirements as to the stadium capacities do not correspond with the actual demand, which is many times lower. Figure 4.2 below shows the average attendance at Lechia's Extraclass matches in Gdańsk, Lech's matches in Poznań, and Śląsk's matches in Wrocław over the last three seasons. The results were compared against the average turnout for all clubs in the individual seasons.

The rapid increase in the attendance at Lechia's and Śląsk's stadiums in the season of 2011/12 compared to the 2010/11 figures was due to nothing else but their moving to the new facilities. Consequently, one can assume that the new location has pertained to an increase in the number of fans by ca. 7–10 thousand. Comparison with the average shows that the figures are satisfactory as for the Polish league, yet the observed increase results in attaining the use of 1/3 of the stadium capacity at best (of 1/2 in Poznań). Another alarming symptom may be seen in the fact that the increase observed for individual arenas is unsteady over the subsequent seasons. In the case of PGE Arena the peak attendance was reached at Lechia's league match with Cracovia in August 2011. The number of fans in the audience has never gone so high since then and in the 2012/13 season the average attendance was lower by 3831 (22.4 per cent) than in the 2011/12 season. In Wrocław, the decrease in turnout at Śląsk matches is not so dramatic, but still substantial, amounting to 1409 people (8.54 per cent). In the same period the average for all stadiums also fell, but only by 371 fans (4.2 per cent).

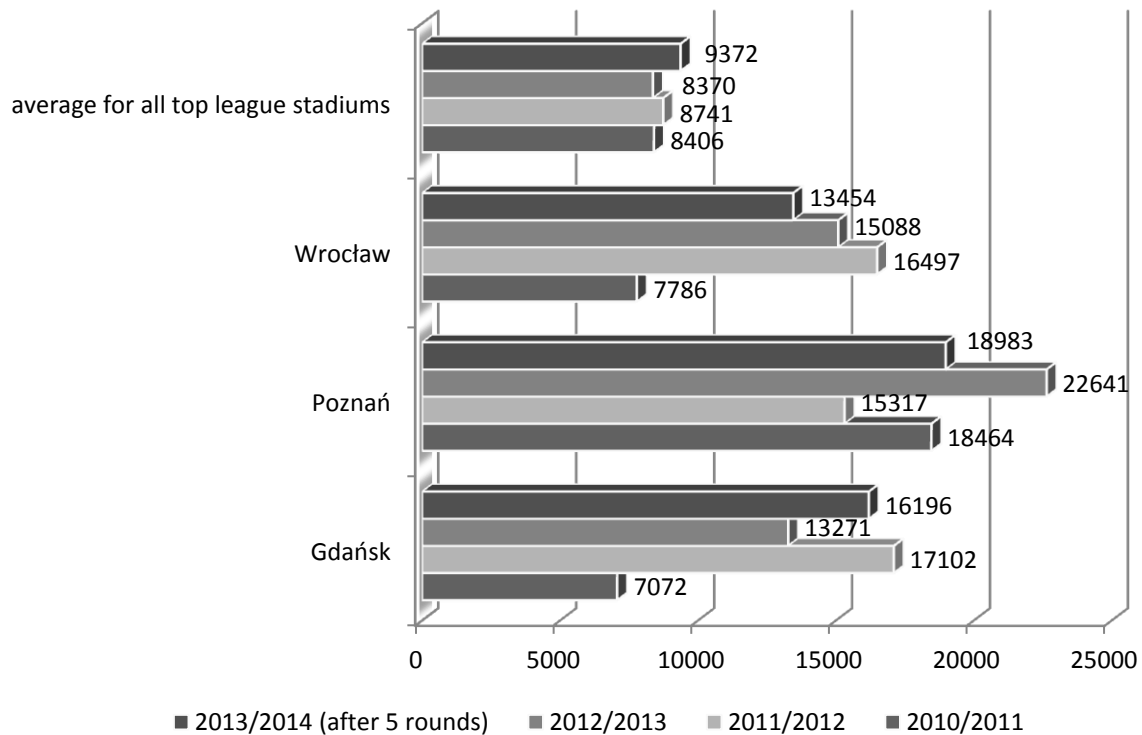


Figure 2. Attendance at stadium in the Euro 2012 host cities

Source: The author's own study based on the data provided by the Ekstraklasa S.A. company.

The phenomenon can be partially attributed to the so-called *honeymoon effect* describing the situation where a newly opened facility initially attracts accidental spectators. The latter, not counting among zealous sport fans, come to see the new facility itself rather than to enjoy the event. Another problem that still haunts the Polish arenas is safety. The connotations with football stadiums are frequently negative in Poland, and football fans are often equated with hooligans and criminals. The image obviously discourages potential visits at football arenas. Alas, the new Polish stadiums have not stimulated a quality of fan behaviour in Poland. Any improvement in this respect requires determined action and broadly scoped cooperation between all football clubs, the Ekstraklasa SA sport company, and the Polish Football Association. The intention to secure safety sometimes translates to absurd requirements. The stadium capacity offered to spectators at the league matches in Poland can serve as an example. It varies almost from match to match depending on the expected number of guest fans and the degree of risk assessed by the Police. In extreme cases the buffer zones separating the fans of individual football teams consume as many as 7–8 thousand seats.

Beyond any doubt, the future profitability of the new facilities will highly depend on participation of the football teams in the European tournaments, since this would intensify the frequency of the matches held, and boost interest in spectators wishing to see the famous footballers live. This, in turn, carries the need to build strong football club teams in the Euro 2012 host cities. The support given by the city authorities to the initiatives aimed at developing such teams is a factor that should not be underestimated. The above then implies that future use of the arenas for strictly sport-related purposes depends on the development of close cooperation between the clubs, sports organisations, and local authorities.

Non-sport sources of financing the stadiums

Even if the fundamental condition of having a strong football club is met, other ways of generating income, not necessarily related to sport, should also be envisaged as early as in the concept-development phase. Multifunctionality of the erected facilities offers a plausible solution to the issue. Multifunctional arenas can be swiftly transformed from football grounds to a track and field stadium or concert hall. Poland resorts to the experience of other countries in this respect. The new facilities erected are intended to serve different functions, non-sport included. The plans envisage the arrangement of shopping and congress centres, cinema halls, recreational facilities etc. to attract people other than football fans. A rather unusual source of income of non-sport origin generated on all Euro 2012 areas are guided tours thereof. On an event day the car parks around the stadiums are tolled. Frequently too, opportunities to let the facilities out to companies for their business events are taken advantage of.

Gdańsk PGE Arena can serve as a good example of using the stadium to non-sport purposes. The city authorities had sought the answer to the question on the possible ways of managing a modern sports facility effectively long before the arena was handed over for operation. In search for solutions, they invited operators administering large stadiums in Western Europe. It was assumed from the very start that the facility would also be used for non-sport purposes, music concerts in particular. Additional income is planned from the lease of VIP boxes and seats, and commercial space for shops, pubs and restaurants. Further plans envisage opening one of the Tri-City's largest fitness clubs on the stadium

estate, a fan shop museum of the Lechia Gdańsk club, a sports shop, and a centre of entertainment. A professional rollerblade track planned to encircle in the arena is intended to provide an extra attraction.

The concept of using the Wrocław arena is somewhat different. The Wrocław 2012 company anticipates that the prime income-maximising components will consist in the sale of stadium-offered products through the lease of 10 000 m² of commercial floor. The tenants are free to develop the leased space in any desired way. The added value offered here is the facility's excellent location enabling quick access to it from all major quarters of the city and from abroad: Czech Republic and Germany. This is due to the site's vicinity on the Wrocław Motorway Ring Road. A major opportunity stems from the option of letting out the business club, i.e. the largest luxury banquet hall in this part of Poland, the especially fitted exclusive boxes perfectly suitable for holding birthday or wedding parties, or the conference centre. The operators see yet another valuable source of income in the modern Data Centre, the server room of which is fitted in the stands. The room is targeted to hold the servers of banks and insurance companies, protected and monitored, equipped with air conditioning and a special gas fire extinguishing installation. The Wrocław stadium is the only area in Poland which has more than half of its business boxes sold as early as in the initial stage of its operation. The operator emphasises that the lease of commercial space should be much more lucrative than, say, organisation of mass cultural events. Therefore, the lease of the facility for cultural events is ranked as a less significant source of income.

The situation in the case of the Poznań stadium is similar. The operator is unwilling to hold non-sport mass events because of their sizable costs, uncertainty of income, and no sponsors or city's support in this respect. The solution adopted in Poznań, unique in the national scale, consists in the engagement of the local community of the neighbouring districts in making the decision on the way the nearest vicinities of the stadium are to be developed. The issue was publicly consulted twice in the year 2012.

To complement the picture let us mention that the National Stadium offers a hall capable to accommodate two thousand people for the future conference centre, eight thousand square meters of office space, and floor designed for shops and restaurants. At the time of the European Championship the space

served the tournament housing e.g. a huge media centre. The estate is also to be complemented with a fitness club. NCS, in its function of the site operator, focuses on large concert events, even though it sees conference space, much in demand, as the main source of income.

Concluding from the above, the concepts cherished by the operators of all four facilities are relatively similar. The prime source of income is seen to come from the lease of floor for non-sport purposes, and lease of commercial space.

However, in addition to the aforementioned, there are other commonly employed methods of income generation. The individual cities place their hope with the so-called Tax Increment Financing (TIF). The application of this source is connected with the expected future increase in the value of property in the neighbourhood of the venue. As a result, the municipality may count on an increase of the property tax base, translating into higher tax receipts for the budget. Thus, the land assigned as the project site is situated in less developed districts of the city, where property prices are relatively low and therefore more likely to increase, to the local government's benefit.

PGE Arena in Gdańsk is a good example in this context. The stadium was built in Letnica – a poor district, where property prices were among the lowest in the whole city. The presence of the stadium significantly increased the value of the surrounding areas, which has already translated into increased charges for perpetual usufruct of land.

Sponsoring as a modern form of financing sports facilities

The third and last source of generating income, available to sport stadiums comes down to winning over sponsors, including the titular sponsor to whom the naming rights are granted. Name sponsoring in Europe has a relatively short history, as it evolved into a larger scale phenomenon only in the late 20. century. Still, this form of financing has won supporters relatively quickly, and today is represented by the stadiums prepared for the World Football Championship 2006 in Germany, i.e.: the Allianz Arena in Munich, Commerzbank Arena in Frankfurt, AOL Arena in Hamburg, Veltins Arena in Gelsenkirchen, Signal Iduna Park in Dortmund, and the AWD Arena in Hanover. The Allianz group alone paid EUR 110 million for having the Munich stadium bear its corporate name for 30 years.

The development of name sponsoring in Poland has until recently only applied to clubs, league games, or events of lesser status. Sponsoring sports facilities comes as a new trend that has gained momentum with the construction of the Euro 2012 stadiums. PGE Arena in Gdańsk can serve as a good example. In December 2009 the competition for its titular sponsor was resolved. The power generators and distributors, Polska Grupa Energetyczna SA, will pay PLN 35 million for the right over the years 2010–2014. The terms of contract stipulate that the new sponsor enjoys the right to make use of the image and name of the stadium and use the facility under the granted advertising and commercial rights package. Since the annual operating costs of PGE Arena are estimated at PLN 12 million, the sponsorship means that at least 60% of the funds to cover the costs will come from the sale of the rights to the name alone.

In addition to the title sponsor, the stadium in Gdańsk has had a so-called technology partner since 2010. It is a company named TRIAS, which agreed to pay PLN 300 000 per year for the privilege of using the stadium's image in the promotion of its business.

In 2013, Poznań became the next city to have found a title sponsor. The largest alternative telecom operator in the Wielkopolska region – INEA and a consortium of Lech Poznań and Marcellin Management concluded an agreement for the term of 5 years. Apart from the new name of the stadium the package of sponsor's benefits includes the marking, marketing services connected with title sponsorship and execution of additional joint projects of the sponsor and stadium operator. For this privilege INEA agreed to pay to Lech an amount of PLN 3 250 000 in the first year of the term of the agreement and PLN 250 000 more each following year. Thus, the entire amount covered by the agreement is PLN 18 750 000 between 2013 and 2017. There are also clauses in the agreement that increase the extent of financing depending on the sporting achievements of Lech Poznań football club. For the title of Polish champion INEA shall pay an additional PLN 1 000 000. The same amount shall be paid for entering the group phase of UEFA Europe League. For entering the group phase of UEFA Champions League the club will receive an additional PLN 2 000 000.

The negotiations in the two other host cities of the Euro 2012 are still in progress, and as at the close of 2012 have not been resolved. The most difficult situation seems to arise in the case of the National Stadium in view of the decision made by the Sejm to name the facility after Kazimierz Górski. After

all, it is difficult to imagine that the potential sponsor will be willing to have its name appear next to the patron's name and the word "national".

Resume

Table 4.4 provides an overview of the stadiums against the criteria of the generated costs and the plausibility of having them covered from different sources of income. Alongside such obvious elements such as the existence of the titular sponsor or the number of the VIP boxes offered, the table provides information on e.g. the size of the estate. The erection of any public facility, i.e. the category that all four arenas prepared for the Euro 2012 in Poland are classified in, entails the loss of income from real property tax. Bearing in mind the sizable expanse of land the structures occupy, this translates to a tangible depletion of the city budget income. Admittedly, the local authorities attempted to locate their arena projects in less developed city areas (Gdańsk and Wrocław, for instance) counting on increase in the value of the neighbouring property and an increase in the tax base that will translate to higher cash flow from the income tax to the entity's budget in the future. This, however, is a time consuming process that may yield benefits years after the stadium has been opened for use.

Obviously enough, management of a facility of the football stadium size requires not only searching for sources of income, but also reducing the operating costs, especially media consumption and work organisation of the labour employed to maintain the site. Even a single unconsidered action, to name e.g. turning on the lights in the stadium, can cost PLN 30 thousand [Pyrzcz, 2012]. In order to develop the optimal plan of managing energy use, it is necessary to understand how the demand of the site changes depending on the types of its use and the times of the day. Implementation of integrated management systems is very helpful in this respect, as they enable attaining maximum functionality, comfort and safety whilst minimising the stadium operating costs. Systems of the kind can be exemplified by the Building Management System (BMS), which manages the building – i.e. distribution of power, cool or hot air, and enables central control of the site. Manual operation of the control panel typically studded with thousands of switches is time consuming, costly, and builds the risk of error.

Table 4.

Characteristics of the stadiums in terms of their maintenance costs and the potential sources of income following the end of the Euro 2012

Item	National Stadium	PGE Arena	City Stadium in Poznań	City Stadium in Wrocław
Monthly projected maintenance costs	PLN 1.5 million	PLN 1 million	PLN 0.5 million	PLN 1 million
Titular sponsor	no	yes	yes	no
Number of VIP boxes (box-offered seats)	69(800)	40(496)	45(480)	30 (2130)
Additional infrastructure, commercial space included	<ul style="list-style-type: none"> - conference hall for 2 thousand, - four restaurants, - shops, - office space, - - fitness club. 	<ul style="list-style-type: none"> - catering outlets, - shops, - pubs, - restaurants, - fitness club, - Lechia Gdańsk shop and museum, - rollerblade track. 	<ul style="list-style-type: none"> - 34 catering outlets 	<ul style="list-style-type: none"> - a luxury banquet hall, - sport bars, - drink bars, - catering outlets at the stadium and the esplanade, - conference rooms, - Data Center.
Estate size	18 ha	27 ha	25.5 ha	16.5 ha
Capacity of the parking facilities	1765	2171	1600	4466

Source: Zawadzki 2013.

Little time has passed since the close of the Euro 2012, hence arriving at a clear opinion on the operators' efforts is difficult. For the time being, all arenas are generating a deficit, yet the representatives of their operators emphasise that the effectiveness of managing sites of that size should be assessed in a long time perspective. Each of the operators has adopted the deadline of at least 3 years to reach the break-even. In order to attain the set goal, the operators strive at maximizing the income from sports and non-sports activities, reducing the operating costs, increasing the durability of the facility and consequently making it more attractive to event organisers. All those elements determine the potential of generating income in the long term.

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