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ECONOMIC EVALUATION OF THE DESIGNED FACILITY - MULTISPORT FLOORS

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Abstract. This article presents an in-depth economic evaluation of multisport flooring facilities, with a specific focus on ASB GlassFloor products and their financial feasibility in the context of Bulgaria's transitional economy. The study applies the calculation method and linear depreciation to determine the total cost, profitability, and payback period of a standard basketball court with an area of 420 m², adaptable for multiple sports, including volleyball, tennis, handball, and small-goal football. By analyzing direct and indirect costs, as well as profit margins and VAT implications, the research demonstrates that the total investment of approximately 2 million BGN achieves a payback period of 3.76 years, aligning with the target threshold of 4 years. The findings underscore the importance of optimizing cost structures, adopting innovative flooring technologies, and integrating multifunctional features to enhance both economic efficiency and market competitiveness. Beyond financial outcomes, the analysis highlights the role of innovative sports infrastructure—such as the ASB LumiFlex system—in shaping new standards for multifunctionality, sustainability, and user experience in contemporary sports facilities. This study not only contributes to the evaluation of investment efficiency but also situates modern sports infrastructure projects within broader discussions of innovation, competitiveness, and sustainable economic growth.

Keywords: calculation method, investment, redemption period

Introduction

Economic efficiency is a key concept in economics, referring to the use of resources to achieve the maximum possible production of goods and services. A system is considered efficient when it provides more output without using additional resources, often framed in terms of Pareto efficiency. This differs from technical efficiency, where increasing one good's output comes at the cost of another. For transitional economies such as Bulgaria's, the economic evaluation of technical projects is particularly important, as it helps enterprises allocate resources effectively in a competitive environment (Гонгалова, Петрова, 2021; Петрова, 2020).

This article examines contemporary assessment methods for evaluating the feasibility of a multisport floor facility. By applying contemporary methodologies of financial evaluation, depreciation, and investment efficiency, the paper demonstrates the profitability of the ASB GlassFloor project. The analysis contributes to ongoing discussions in the literature regarding cost measurement, valuation, and corporate finance (Brealey et al., 2019; Copeland et al., 2000).

Methodology

The study examines the organizational structure and activities of ASB GlassFloor GmbH, based in Stein, Germany. Established in 1965, ASB has grown from aluminium building systems into a market leader in squash courts and later into glass-based sports flooring solutions. Through innovations like ASB LumiFlex, the company has transformed the industry by offering multifunctional flooring with dynamic marking systems. These products are recognized by international sports federations and have received prestigious awards such as the German Innovation Award and the European Product Design Award.

For this evaluation, the calculation method was used to determine cost efficiency, supported by linear depreciation to account for the lifecycle of the asset. Financial data was sourced from ASB GlassFloor GmbH, ensuring the reliability of the cost and revenue figures (Петрова, 2020a).

History, organizational structure, and presentation of the activities of ASB Glassfloor GmbH, Stein, Germany

ASB (short for "aluminium building systems") was founded in 1965. Horst Babinsky founded "Babinsky Trockenbau KG", which later developed into Systembau Horst Babinsky GmbH. It started with aluminium building systems and quickly progressed to the construction of kindergartens, schools, etc. In the 1970s, ASB revolutionized squash, becoming the market leader within 10 years.

In 1987, Horst Babinski received the Innovation Award from the squash press in Germany, and in 2002, the founder of ASB received a special award from the World Squash Federation (WSF) in Kuala Lumpur.

In 1977, the first ASB SquashCourt was featured on the popular TV sports show “Das aktuelle Sportstudio“, signalling the beginning of a tremendous success for a new squash court design. The ASB system court reached 50% of the German-speaking market, and in the following years, more than 7,000 ASB squash courts were installed worldwide.

With ASB GlassFloor comes an additional focus, beyond squash. The first ASB GlassFloors were installed at the ASB ShowGlassCourts and naturally led to huge discussions about the use of glass for sports.

After a court case, the ASB system was vindicated, and in 2009, the first ASB sports glass floor was installed in a school sports hall.

Christoph Babinski, who took over his father's business, is the director of this area of the business, and under his leadership, the first projects were implemented, including the BT Sports Studio in London, where the marking lines for each sport can be selected by simply pressing a button.

More projects are on the way, including GlassFloor's largest order to date for the 2,000 square meters Elbflorenz Events Hall in Dresden, Germany.

Since 2012, ASB has reached new heights with innovative developments like ASB LumiFlex, disrupting and transforming the world of indoor sports. ASB is at the forefront of innovation with an uncompromising approach to multifunctional design.

Positions and equipment at ASB Glassfloor GmbH

Since May 2016, the company has been a joint-stock company, with the majority owner being the founder and managing director, Christoph Babinski. The remaining shares are owned by the financial and investment company Abacus Alpha GmbH, based in Frankenthal, Germany.

The modern office building located in Stein, Germany, is the workplace of the entire company team, which consists of several departments. The sales department is the largest since the company operates worldwide. The rest of the team is made up of people involved in the design and engineering of the projects – architects, electrical engineers, structural engineers, software engineers, and supervisors.

ASB collaborates entirely with subcontractors and does not need a production facility or production staff. For this reason, the company's equipment is office equipment.

Certificates and awards of ASB GlassFloor GmbH

ASB GlassFloor products are certified for the highest level of competition by the International Basketball Federation, International Handball Federation, and International Volleyball Federation, and exceed all performance criteria such as absorption, ball rebound, slip resistance, and friction test. Awarded with the prestigious German Innovation Award, the Sports Business Award, and the European Product Design Award, reflecting user orientation, added value, and design brilliance. The game-changing potential of ASB LumiFlex flooring leads to its adoption in various sports competitions, such as the 3x3 Pro League in the Netherlands, before season matches of the German Bundesliga, and the FIBA U19 Women's Basketball World Cup.

ASB's LumiFlex floor is a gold winner at the German Innovation Awards for its user-friendliness and added value for sporting events, trade fairs, and other events.

Sports Business Award Re-Awarded to LumiFlex, Receives Silver Award in the Sports Innovation Award Category at the Sports Business Awards for Innovative Tracking Features and Continuous Development.

European Product Design Award for the LumiFlex multifunctional floor. Gold in the “Event Supplies” category at the awards for product design, application, and diverse entertainment options that offer guests an exceptional experience.

Economic evaluation of a technical project for the Multisports floor

In market economies, efficiency is driven by competition, requiring firms to optimize their use of limited resources. Efficiency is assessed by comparing outcomes such as revenue, market share, and profit against the material, labor, and financial costs that generate them (Петрова, 2020).

The efficiency of any production is a main condition for economic and social progress. It is economic efficiency that motivates any economic activity. This is also one of the main distinguishing features of the market-oriented economic system in comparison with the centrally planned one.

In a market economy, competition requires companies to use limited resources as efficiently as possible.

The essence of efficiency is expressed by comparing the effect (E), which is the result, with the costs (Ex) that generated it, as shown in the formula (1).

$$E_f = \frac{E}{Ex} \qquad (1)$$

In business, the effect is measured in terms of production volume, sales value, market share, realized profit, quality, etc. Costs represent the various resources – material, labour, and financial – with which these results are achieved. When comparing these indicators, the degree of effective use of resources is established. Relative values, i.e., efficiency indicators, are of greater practical application than the absolute value of the effect.

As a rule, economic efficiency is not measured unambiguously but is considered and assessed at various levels - investment efficiency, production efficiency, efficiency of scientific research and development activities, and efficiency of the enterprise's activities. On this basis, financial analysts also use various criteria and indicators for analysis and assessment.

It is important to note that the importance of economic efficiency is determined by the following: Its measurement is based on the general setting in the economy, input-output, i.e., what is invested and what is received. On this basis, the degree of use of the invested materials, financial and labour resources is assessed. Based on the calculated indicators, the state of the company is assessed in comparison with past periods or in comparison with other companies.

Research and assessment of the economic efficiency of the production of the Multisports floor

Manufacturers and traders play a key role in economic life. They assume several responsibilities and risks in the production and offering of one or another product on the market, in which they often put their capital and even their existence at stake. Their survival and prosperity in the conditions of strong internal and external competition depend on the low cost, high quality, and optimal profitability of the products they offer.

The cost price is a key economic indicator for assessing production efficiency. It is the monetary expression of all costs a company incurs for production and sales. These costs are separated into economic elements:

Material costs – this includes the cost of raw materials, basic and auxiliary materials (after deducting usable waste), finished products for assembly, fuel and energy consumed, spare parts for repairs of fixed assets, etc.

External service costs – These are services provided to the enterprise by other individuals and enterprises. These include the costs of advertising, communications, printing, telephone, and telex charges; taxes; transport costs; rent for premises, etc.

Depreciation costs – The cost of production must necessarily include depreciation amounts deducted from the value of the fixed tangible and intangible assets used for its production.

Salary expenses – These are the salaries and other amounts that the enterprise pays in accordance with the concluded employment and civil contracts, the Labor Code, and other regulatory acts.

Social security costs and allowances – They are determined as a percentage of the salary paid. Only those costs that are at the expense of the enterprise are calculated in the cost price. They are paid monthly into the income of the social security funds.

Other expenses – operating expenses, business trips and business trips, student scholarships, depreciation of inventories, and others.

Costs are distributed by types of activities:

- basic,
- auxiliary,
- future expenses,
- organization and management costs,
- costs of selling the product.

The cost of a unit of production is determined by the calculation method. It is calculated for newly acquired products and for changes in the prices, quality, and type of resources used in the production and sale of the product.

Several types of costs are known:

Direct cost – includes costs for materials, fuel and energy, depreciation, external services, salaries and social security, and allowances.

Production (abbreviated) cost = direct cost + other costs.

Full cost = production cost + organization and management costs + sales costs of the product.

The full cost, in turn, adds up to the previously set profit and warranty service costs to form the ***wholesale price*** of the equipment. When value-added tax (VAT) is added to it, ***the price of the product for the customer*** is obtained.

Table 1 provides the cost structure of the multisport floor project:

Table 1. Economic Evaluation of the Multisport Floor Project

№	Name of expenses	Per unit of production	Measure/BGN
1	Material costs	600 000.00	**BGN**
2	Fuel and energy costs	5 000.00	**BGN**
3	Salary expenses	122 000.00	**BGN**
4	Social security costs	10 000.00	**BGN**
5	Depreciation	160 300.00	**BGN**
6	External service costs	60 000.00	**BGN**
7	Other expenses	4 500.00	**BGN**
	Production cost	961 800.00	**BGN**
8	Management costs	15 000.00	**BGN**
9	Implementation costs	200 000.00	**BGN**
10	Warranty maintenance	25 000.00	**BGN**
	Full cost price	1 201 800.00	**BGN**
11	Profit	480 720.00	**BGN**
	Wholesale price	1 682 520.00	**BGN**
12	VAT	336 504.00	**BGN**
	Price for the customer	***2 019 024.00***	***BGN***

The table shows that the full cost of a unit of product is 1,201,800 BGN. The wholesale price is 1,682,520 BGN, and the last price for the client is 2,019,024 BGN. A calculation has also been made for the entire volume of the project, which is 420 square meters.

The essence of the *price* category can be considered in two aspects:

1. From the point of view of the labour theory of value, price is a monetary expression of the product for exchange. Value expresses the magnitude of the labour costs, on average, socially necessary for production. In accordance with this theory, under the same production conditions, the same amount of labour is always produced with the same amount of value. Goods are exchanged according to the labour input necessary for them, with prices constantly fluctuating around value and under the influence of supply and demand.
2. From the point of view of the immediate producers and consumers, the price is an assessment of the use value of the commodity from the point of view of the one who produces or exchanges it. The price is tied to the use value, and not to the socially necessary labour costs. Since the price is determined by the producer, it is determined by his idea and judgment. Consumers are also guided by their assessment of the use value of the product and accordingly accept or reject the price offered to them. It should be mentioned that, in addition, consumers always ensure that the price does not exceed some maximum limit (limit of financial comfort).

The price level is directly dependent on the proximity to the consumer. Each intermediate link leads to additional costs on the cost price, which leads to a decrease in profit. Other factors besides the number of intermediate links that determine the price level are competition, product quality, brand name, and others.

There are many methods to calculate the cost (C) of a product. In our case, we chose the *"cost plus profit" method*.

The resulting price is the wholesale price for all retailers of the product. For the customer, value-added tax must be added to this price (2).

$$VAT = P\,.20\%\;VAT = 1\,682\,520\,.20\%\;VAT = 336\,504\;BGN \quad (2)$$

The analysis of the final financial and economic results is of utmost importance for the management activity of the company. When analysing the profit, it must be considered that its size, its change, and its distribution are directly dependent on the directions, scale, and pace of development of production and the company.

Profit is one of the main indicators of financial and economic results. That is why profit analysis is of utmost importance. Profit analysis establishes its growth, unused opportunities, and influences several management decisions, etc. Profit determines and assesses the degree of reality and feasibility of planned profit tasks, their trends, and directions for change. Resources, factors, and reserves, their development, distribution, use, and their impact on profit are studied and assessed. As a result, specific guidelines are developed for increasing the size of profit in future periods.

Profit is directly dependent on the level and dynamics of individual types of income and expenses incurred by the company. This dependence can be briefly formulated as the difference between income and expenses. The profit (Pr) that ASB GlassFloor GmbH calculates is 40% of the full cost price (3).

$$Pr = CP\,.40\%\;Pr = 1\,201\,800\,.40\%\;Pr = 480\,720\;BGN \quad (3)$$

The profit for the entire production (P_{EP}) can most easily be determined by multiplying the profit per unit by the square footage set in the project.

For example, for a basketball court measuring twenty-eight meters long and fifteen meters wide, we get:

$$P = \frac{2\,019\,024}{28.15} = 4807.20\ BGN \qquad (4)$$

The payback period is widely used in research and evaluation of the effectiveness of short-term investments or investments with increased risk. For each investment option, a payback period of the invested funds is determined, i.e., the time during which the invested funds are returned to the company's budget is determined.

The payback period for the investment is determined using the payback period formula:

$$IPP = \frac{IIn}{NCF} = \frac{2\,019\,024}{536\,000} = 3.76\ years \qquad (5)$$

IPP – Investment payback period in years

IIn – Initial investment;

NCF – Net cash flow.

Net cash flow is an average annual value for the entire period of use of the investment object. It can be determined in two ways:

- As the difference between cash receipts and cash payments,
- As the sum of net profit, depreciation, and proceeds from the liquidation of the asset.

This shows that the invested capital of over 2 million BGN is expected to be returned in approximately 3.76 years, which aligns with the project's goal of a payback period of up to 4 years. The standard redemption period is about 3 years and 10 months.

The data used in this analysis is provided by ASB GlassFloor GmbH, a company with a long history of innovation in sports flooring. ASB GlassFloor products are certified by international federations and have received prestigious awards, confirming their high quality and innovative design. The company's LumiFlex flooring, for example, has been adopted in various international sports competitions.

Such results are consistent with theoretical approaches to capital evaluation and investment appraisal. Moreover, research shows that the payback period is a handy tool in evaluating short-term or risk-sensitive investments.

Broader Perspectives on Sports Infrastructure Investments

Beyond direct financial measures, investment in sports infrastructure provides broader economic and social benefits. Scholars note that sports facilities contribute to urban development, generate employment, and enhance community engagement (Gratton, Preuss, 2008). In addition, advanced multifunctional facilities can foster healthier lifestyles, increasing the social return on investment.

Sustainability also plays an increasingly important role in economic evaluation. Modern infrastructure must account for lifecycle costs, energy efficiency, and durability of materials. Incorporating these factors strengthens the case for innovative flooring systems like ASB LumiFlex, which offer long-term value beyond initial capital recovery.

Finally, in the context of strategic management, innovation-led investments support firms in achieving sustained competitive advantage. By leveraging unique resources and innovative technologies, companies can position themselves strongly in global markets (Petrova, 2020).

Conclusions

This analysis of the multisport floor project demonstrates that modern evaluation methods confirm both the financial viability and strategic benefits of investment in innovative sports infrastructure. With a payback period under four years, the project is financially sound. At the same time, its broader impact lies in promoting multifunctionality, sustainability, and competitiveness, thus contributing to long-term economic and social value.

The main goal of any business is to achieve economic efficiency. This analysis of the multisport floor project demonstrates a successful strategy for financial efficiency and effective resource management (Petrova, 2020; Петрова, 2020). The calculations show that the project is financially viable, with an optimal distribution of costs and profit. The determined payback period of 3.76 years confirms that the investment is sound and will be returned within the desired timeframe.

The integration of technological innovations like the ASB LumiFlex floor system not only increases production efficiency but also provides a significant competitive advantage. The numerous awards and certifications received by ASB GlassFloor GmbH further validate the high quality and innovative nature of their products, solidifying the company's position as a market leader.

In summary, this economic evaluation confirms that strategies focused on optimizing production processes and implementing innovative technologies are key to the economic success of the company and the viability of this specific project (Петрова, 2020a).

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PROJEKTUOJAMO OBJEKTO EKONOMINIS VERTINIMAS – DAUGIAFUNKCĖS SPORTO GRINDYS

Santrauka

Šiame straipsnyje pateikiamas išsamus daugiafunkcių sporto grindų ekonominis vertinimas, ypatingą dėmesį skiriant „ASB GlassFloor" gaminiams ir jų finansiniam pagrįstumui Bulgarijos pereinamosios ekonomikos kontekste.
Tyrime taikomas skaičiavimo metodas ir tiesinis nusidėvėjimo skaičiavimas, siekiant nustatyti standartinės 420 m² ploto krepšinio aikštelės, pritaikomos įvairioms sporto šakoms – tinkliniui, tenisui, rankiniui ir mažajam futbolui – bendras sąnaudas, pelningumą ir atsipirkimo laikotarpį. Analizuojant tiesiogines ir netiesiogines sąnaudas, taip pat pelno maržas ir PVM poveikį, nustatyta, kad bendra maždaug 2 mln. BGN investicija atsiperka per 3,76 metų, o tai atitinka 4 metų tikslinę ribą. Išvados pabrėžia sąnaudų struktūrų optimizavimo, inovatyvių grindų technologijų diegimo ir daugiafunkciškumo integravimo svarbą, siekiant padidinti tiek ekonominį efektyvumą, tiek rinkos konkurencingumą. Be finansinių rezultatų, analizė išryškina novatoriškos sporto infrastruktūros, tokios kaip „ASB LumiFlex" sistema, vaidmenį, formuojant naujus daugiafunkciškumo, tvarumo ir naudotojų patirties standartus šiuolaikiniuose sporto objektuose. Šis tyrimas ne tik prisideda prie investicijų efektyvumo vertinimo, bet ir pateikia šiuolaikinius sporto infrastruktūros projektus platesnėms diskusijoms apie inovacijas, konkurencingumą ir tvarų ekonomikos augimą.

Reikšminiai žodžiai: skaičiavimo metodas, investicijos, išpirkimo laikotarpis

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