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ECONOMIC EFFICIENCY OF A SEA HOTEL COMPLEX

AUTHOR'S ABSTRACT

of a dissertation for the conferring of the educational and scientific degree "doctor"

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The dissertation consists of 242 pages, from which: introduction (5 pages); expose in
three chapters (207 pages); conclusion (6 pages); references (14 pages). The main text contains
13 tables and 13 figures. The list of references consists of 196 titles, including 175 literature and
21 internet sources. Three attachments have been prepared to the dissertation (11 pages).

I. GENERAL CHARACTERISTICS OF THE DISSERTATION

1. Relevance and significance of the problem

The relevance of the topic originates from the existing unprecedented pandemic situation and the trials which it sets in the tourist sector and particularly in hotel and restaurant business. The deterioration of the economic indicators of the hotel objects and their general performance at the tourist market, is provoked by the decrease in the demand as a result from COVID-19 and its real reflections for the creation of a comprehensive insecurity in this sector. Precisely for this reason, the research of the economic efficiency of accommodation places is nowadays vital for a timely change of the companies' strategies and the adapting of their activity in relation to the new requirements of the consumer demand¹.

The efficiency depends on the effects and efforts ², but not in the least on their assessment method, on the fact, that the expression of value, realized through prices, contains inflation and other influences, changing the real result from the expanded activity. In these conditions, for a complex and correct analysis, we have to take into consideration other elements such as: the structure of resources and results, the time, the quality of services, their impact. In this context, efficiency has an important significance, related to the use of all categories of resources: natural, human, material and financial, for all components of the activity: production, commerce, services, their quantitative, qualitative, social, economic, direct and indirect aspects.

Within the framework of the tourist branch, the research of the hotel sector is especially important due to the present big challenges, which the sector is facing: the increase of tourist travels and the specialization of the offering of quality services³. The development of innovative technologies and the growing supply of places for accommodation enhance the competition in the sector, which has as a result the diversification of services, offered by the hotel objects. The hotel business is an activity, which has proven its economic efficiency ⁴. In order for a hotel to be profitable enough, and to manage to remain at the market, it requires an efficient management, based on the emphasis of its major competitive advantages.

According to economic theory, two types of competitive advantage are differentiated, which according to their origin are: an advantage, regarding the costs or low prime cost and a

¹ Ministry of health. An analysis of the influence of the COVID-19 pandemics on the agricultural sector in Bulgaria and the possibilities for support for overcoming the negative consequences from it (https://www.mzh.government.bg), 29.12.2021

² Marchevski, I. An assessment of the marketing efficiency - problems and possible solutions //Almanac "Scientific research", Volume 21, 2014, p. 61-89

³World Tourism Organization, International Tourism Highlights, 2019, p.3

⁴ Yanev, R. Optimization of the revenue in hotel business. Burgas, 2019, p. 130

competitive advantage through differentiation (a marketing advantage). The prime cost is one of the fundamental indicators for the measuring of economic efficiency of any enterprise, including in tourism as well, and it is based on the organizational and technological skills in the organization⁵.

Consequently, the efficiency management in this context turns into a key area in hotel complexes management.

2. Subject and object of the research

Object of the research is the sea hotel complex and more concretely hotel complex Atlas in the resort complex Golden sands.

Subject of the research is the economic efficiency of a sea hotel complex.

3. Purpose and tasks of the research

The basic purpose of the dissertation is through a theoretical systematization, analysis and evaluation of the economic efficiency of the sea hotel complex, directions to be outlined for its increase, following the example of hotel complex Atlas.

In connection with the so defined purpose of the research, the **following basic tasks** are formulated:

- 1. To systematize the available theory and to deduct the peculiarities of the economic efficiency in tourism and in particular of investments and economic efficiency of a sea hotel complex;
- 2. To develop a model for the research of the economic efficiency of a sea hotel complex;
- 3 To make an analysis and an assessment of the economic efficiency of a sea resort complex following the example of hotel complex Atlas in r.c. Golden sands;
- 4. To examine the economic tendencies in the development of sea resort complexes in Bulgaria;
- 5. To outline recommendations for the increase of the economic efficiency of a sea hotel complex following the example of h.c. Atlas in r.c. Golden sands.

Research thesis and hypotheses

The fundamental research thesis of the dissertation is, that the economic efficiency of a sea hotel complex and its increase are differentiated by multifactors, regarding the expenses and revenues from the activity of the object.

⁵ Nikolova, I. Factor determination of the competitiveness of the hotel product. Sofia, 2019, p. 57-58

The formulated thesis is concretised in the **following three hypotheses:**

Hypothesis 1. The efficiency of the sea hotel complex depends on the structure of expenditures, in which the greatest part take the expenses for salaries and social insurances.

Hypothesis 2. The efficiency of a sea resort complex depends on the structure of the revenue, in which the greatest weight has the revenue from rooms.

Hypothesis 3. The efficiency of a sea hotel complex depends on its capacity, expressed in the number of beds.

4. Research methodology

In the present dissertation, hotel complex Atlas in r.c. Golden sands is examined. As a basis object in the research a Greek hotel complex is determined, operating mostly with foreign tourists, which is representative for this type of objects in a sea resort complex in a developed tourist destination. For the accomplishment of the purpose and the solving of the research problems a number of research methods and approaches is used, the more important of which are: a theoretical analysis, a comparative analysis, a method of deduction and induction, a data summarizing approach (DEA).

5. Information procurement

During the development of the present dissertation different information sources have been used, such as primary /public financial statements of a company, owner of h.c. Atlas/ and secondary /specialized literature, including scientific works of Bulgarian and foreign authors (predominantly in English language), specialized editions of tourist organizations, research agencies and consulting companies, normative acts, etc.

II. STRUCTURE OF THE DISSERTATION

The structure of the dissertation reflects the author's views for the conduction of the research, as it combines its subject, object, research purposes and tasks. The dissertation consists of 244 pages from which: introduction (5 pages); expose in three chapters (207 pages); conclusion (6 pages.); references (15 pages). The basic text contains 13 tables and 13 figures. The list of the literature used, consists of 197 titles, including 176 literature u 21 internet sources. Three attachment have been prepared to the dissertation (11 pages).

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III. A BRIEF EXPOSITION OF THE DISSERTATION.

First chapter. THEORETICAL FUNDAMENTALS OF THE ECONOMIC EFFICIENCY OF A SEA HOTEL COMPLEX

In 1.1 § Definition of a sea hotel complex the nature and peculiarities of a sea hotel complex are examined. In the great variety of terms, defined in the normative basis about the accommodation places, it is important to differentiate between and define the terms "resort", "tourist complex", "resort complex" and "hotel complex".

Resort complexes can be viewed as a subgroup of the tourist complexes. They originate

from them, but differ at the same time, because of their specific adjacent natural recreation resource. An example of that are Disneyland parks, which offer complex tourist services, based on anthropogenic touristic resources. At the same time, resort complexes are maritime, mountainous and balneo-healing as Golden sands in Bulgaria, Aspen in the USA and Bat in England.

The term "hotel complex" is interpreted in the context of the hotel superstructure. The hotel superstructure at a macrolevel includes all sojourn establishments on a given touristic territory, and at a microlevel - the building of the object itself with its style, design, architecture, premises and functional connections between them, equipment and furnishing. The functional completeness and unity of the hotel complexes system as a variety of the hotel, is realized through subsystems, which combine the different exploitation units through activities, providing the work in the complex.

On the basis of the examined definitions, we could make the following conclusions about the essence of a sea hotel complex:

First: The sea hotel complex is a vacation object for complex services, situated near the sea. The beach is the main object of tourist attractiveness for the visitors.

Second: This type of tourist complex offers a broad variety of services and conveniences, which usually includes entertainment activities.

Third: As an independent place of accommodation, it satisfies the most of the vacation makers' consumer needs, which allows them to remain at the territory of the complex, without feeling the necessity to leave it in order to look for additional goods and services (accommodation, food, beverages, sport, entertainment, shopping, etc.).

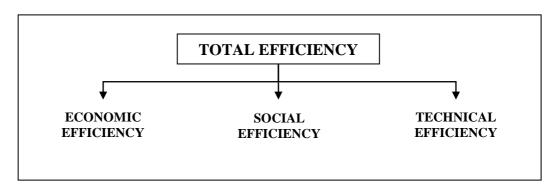
Fourth: The advantages of the sea hotel complex are, that the guest finds not only the proximity of the beach, but also a complex service on the territory of the complex. It is convenient for families, as it often offers children's clubs, evening entertainment program, shopping, etc. In cases, when the complex is situated far from the city, it provides the whole necessary infrastructure. Such complexes, besides, are used as a place for the conducting of different events (marriages, conferences, team building, etc.).

§ 1.2. "Criteria and indicators for the assessment of economic efficiency in tourism" presents the definition of efficiency as a result. This means, that the main emphasis in the contents is placed on the achievement of the aim, situated in the numerator of the fraction - the so called effect. The ideal variant demands, that this would happen with minimum expenses.

There are simultaneously purposes, which the individual or the society strive to achieve by all means, independently of the size of the expenses, demanded by them, for example the preserving of peace, health and people's life, the pureness of the atmosphere, etc. The types of efficiency are determined depending on the sphere, where we look for it. In this sense it is: economic, social, ecological, aesthetic, connected with the energy, etc. The determining of the relations between the different types shows the versatility and the degree of their mutual interdependence⁶.

When we speak of efficiency, we traditionally accentuate on the economic one, revealing itself in the interdependency "expenses-benefits" ("expenses-effects"). Each public activity is performed with a more and more limited number of resources, and this poses the necessity of a correct planning and an adequate comparison between the level of expenses and the desired effects ⁷.

The integral interconnections between the economic, social and technical efficiency are from strategic importance for the successful positioning and remaining at the market of any economic subject (see fig. 1).



Source: The figure is compiled by the author

Fig.1 The economic efficiency as a part of the total efficiency of the tourist enterprise

In the dissertation, an emphasis has been placed precisely on economic efficiency. It relates to the productivity theory or a production function. The term "production function" is broadly used for determining of the connection between the groups of input resources and the groups of produced production, as the maximal production is calculated, which can be obtained from the given consumed resources. Since the economic efficiency is a relative dimension, related to the production function, a standard is included in its definition, which is called

⁷ Angelova, V. Prof. Venelin Terziev: The social efficiency could be a measurement of our activity. (https://trud.bg), 20.12.2021

⁶ Georgiev L., Efficient sales. Commercial techniques, Sofia, 2014., p. 14

"fulfillment function". In this case no external indicator is demanded. The economic efficiency of each economic branch is a comparative measure about this how well this sector actually processes what is invested, in order to accomplish its products, in comparison with the best practices, which are used by the most efficient industry ⁸.

The efficiency in distribution demands the distribution of of goods and services between end consumers to be with an efficiency, at which the resources are maximally efficiently distributed, so that all participants are unharmed, the so called Pareto efficiency.

Economic efficiency in tourism

The efficiency in tourism supposes the interrelation between the different income components or the differences in the categories of resources, necessary for the achievement of a definite effect. In this connection, the efficiency depends on the efforts and effects and from that how they reflect the inflation and other external influences. All of this causes other factors to be taken into consideration as well, such as the structure of the resources and the results, time, quality effects and their impact. In this context, efficiency can be viewed as the general content, comprehensive, relating to the usage of all kinds of resources: natural, human, material and financial, for all components of the activity: production, commerce, services, their quantitative and qualitative aspects, economic and social, direct and indirect. In view of the specific characteristics of tourism, how far a service is efficient, is determined not only by the way of its preparation, but by the needs it satisfies as well. The end user is less interested in the efficient utilization of resources, input in the product, and much more - in the quality of this product. In this sense, for the enterprises, the economic parameters from the process of rendering the service are important, and for the consumers - the quality parameters of the service.

For the assessment and measurement of the economic efficiency in hotel business, as well as in any other sphere of activity, a vast sequence of criteria and indicators is used, originating from the complexity, the processes content, and the versatility of the consumed resources. Criteria and indicators with a common application may be used, common for all economic sectors, and specific ones, originating from the specifics of the activity in this field.

The efficiency of tourism is expressed with the net revenue, realized through the materializing of the labor activity, spread out through the way of usage of each production

Andreeva D., Financial management of the enterprise and the role of business evaluation, Sofia, 2012, UNWE

⁹ Lukanova, G. Modern measurements of efficiency in the hotel services. A collection of reports from a scientific conference dedicated to 40 years from the creation of specialty "Tourism", Publishing house. "Science and Economics", UE - Varna, 2005, p. 450 - 451.

factor. It on its part could be the connected natural environment, labor and capital. It can be used as a criterion for an evaluation of efficiency: amount of the net revenue and the connected with it profitability, expenses level, level of labor usage ¹⁰.

The efficiency of touristic enterprise is analyzed through additional indicators for the assessment of economic activities:

- ✓ number of personnel, attending 100/1000 beds (sitting places);
- ✓ expenses per 1 bed (room, sitting place);
- ✓ profit from 1 bed (room, sitting place, travel);
- ✓ average revenue from accommodation (travel);
- ✓ average revenue per one tourist, etc.

The last indicator is a relation between the total sum of the revenues and the number of tourists. Through it the profitability from the servicing of tourists from different countries is compared.

The hotel business has the most important role in tourist activity and constitutes a share of 40% in its structure, as the shares of other services, for example meals, additional services are under this percentage. It influences besides, to a great extent, the remaining elements from the tourist product, and constitutes a support for the tourist activity. All of this leads to the conclusion, that the quality and efficiency of this service have to be defining during the establishing of the results from the whole tourist activity.

The efficiency of the accommodation service can be evaluated, by using the common criteria and indicators, as well as on the basis of several elements, connected with the specifics of this activity. Respectively, it is possible for indicators to be used such as:

- o an average number of personnel;
- o average present value of the long-term assets;
- o accommodation expenses;
- o available capacity, expressed in places, days, etc.;

and with indicators like:

- o hotel services revenue;
- o additional services revenue;
- o profit, etc.

¹⁰Mileva, S. Investment and threats for the development of tourism //E1ee1roшe magazine "Dialogue", issue 4, Svishtov: Business academy "Dimitar Tsenov", p. 3

The revenue is secured by the encashment of hotel services in a direct connection with the volume of activity, represented by the number of tourists, the quality of services (presented by the category of the comfort of the unit for accommodation and the price level), with the diapason of the offered additional services (renting, cleaning, laundry, special services, mini-bar, etc.).

The expenses constitute, in their structure and content, the specifics of the activity: the expenses for salaries form almost 40% from the total expenses, the expenses for rent of the long-term tangible assets are 10% - 15%, the common expenses constitute almost 10%, the maintenance costs are 5%, etc., as the transportation costs are missing or are insignificant. In the hotel activity (just accommodation services) the expenses account for 60% - 69% related to the total revenue, expressed by the profitability level (36% - 40%)¹¹. In comparison with that, the average level has deviations, determined by the category of the hotel, its busyness with local and foreign tourists, the positioning of the hotel in a region with a high tourist attendance or with a low tourist attendance

§ 1.3. "Investments and economic efficiency of a sea hotel complex" Investments in a sea hotel complex

During the investment process the investors face many alternative possibilities for a decision. The choice opportunities, connected with the investment, have to be analyzed very carefully. As a reliable investment object, hotels give a constant and predictable return. They constitute an investment alternative in the traditional real estate markets such as the residential buildings sector. Hotel business attracts owners and investors ¹³. The successful investment in a hotel asset is an art, and science. A vast knowledge of the markets is necessary, of hotel operations and concepts, in order to achieve a big profitability. Stephen Rushmore from HVS (Hotel valuation services) states, that "The investment in hotels and motels is considered by many a high risk investment of time and capital."¹⁴. The purchase of a hotel or the participation with an investment into a hotel is a vast engagement. There might be cases, when the potential investors do not know where to start, when they try to make a hotel investment. Because of that, it is extremely important for the investors to know the main concepts about that how the hotel activity is organized and what the responsibilities of being an owner are. The unsuccessful research and understanding of the hotel investment structures and concepts could have serious

¹³ Isenberg, W., Hospitality Financial Management, 2014, p.27

¹¹ Corne, A., Benchmarking and Tourism Efficiency, 2018, P.23

¹² Also there, p. 23

¹⁴ Hotel Valuation Services, HVS 2015 hotel cost estimating guide. Jonathan Nemher & Associates, 2015, p. 2-5

negative consequences for the investors and the business. Consequently, the investment process should pass consequentially, through the following steps:

- Determining of a hotel asset;
- Choice of the market:
- Levels of transactions and capitalization;
- Risk;
- Location;
- Characteristics of the property and evaluation scale;
- Choice of an object;
- Development and financing;
- Choice of work from the type "franchise" or "hotel management";

§ 1.4. "Model for the measurement of the economic efficiency of a sea hotel **complex**" follows the processes of measurement and optimization of the economic efficiency. Each hotel has its unique characteristics and there is no universal formula about this how to improve its performance and efficiency. The sea hotel complexes have two basic possible variants for increasing their efficiency. The first option is to decrease the invested means, which they use in the process of service rendering - in this case, minimization of the premises, F&B, labor, energy ans other expenses. Labor is the biggest variable among the expenses of the hotel complexes. Managers are striving to diminish the labor expenses and to increase profits. The second variant for an improvement of the efficiency is to increase the number of accommodations, which constitute the results, obtained from the process of service rendering. This for example could relate to the revenue and busyness. Hotel managers have to carefully consider the two variants. Minimization of expenses could have positive short-term effects, but in the long run there is a danger it could reflect on the quality of services, as well as the satisfaction of the guests and employees. A revenue maximization could be achieved with an increase of the prices of services, and the hotel managers have to carefully test the price elasticity of the managed by them object.

In the present elaboration, a model will be suggested and approbated, for an evaluation of the efficiency in a concrete sea vacation hotel on the basis of the DEA approach. The advantage of the information about the efficiency, supplied by the DEA approach is, that all investments and business results are taken into account and this secures a broader scope of the results.

Efficiency will be examined on the basis of a non-representative sample, but the model could be applied in other objects and countries, which have similar conditions, as a high dependency on tourism and an accent on sea tourism, which is limited to one season. The aim is to present the results from the hotel efficiency as an information source, necessary for the improvement of the business results and the providing of indicators for hotels, which have not reached a maximum efficiency.

Economic evaluation of investment projects in a sea hotel complex

The good financial and economic analysis during the projecting, evaluation and implementation of projects, plays a key role for the accomplishment of the desired economic results and the increasing of the probability of sustainable economic benefits from a given project. The characteristics of the economic evaluation with investment projects in field of tourism are:

- a big size of the investment costs in comparison with the current costs;
- necessity of comparatively frequent additional contributions;
- economic activities with a fast turnover and expectations of the investors for a high current profitability;
- dynamic business environment and instability of money currents.

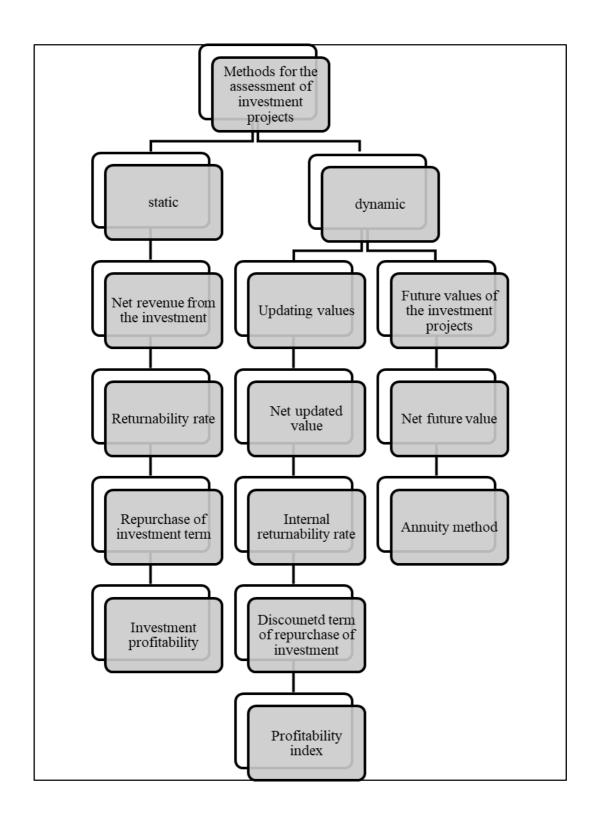
In a financial aspect there is a vast number of methods for the evaluation of investment. They could be differentiated into two groups - static methods and dynamic methods, which are presented in figure 2 (see fig.2).

The static methods focus mostly on the monitoring of money benefits or the measurement of initial expenses. They do not include a risk factor and take the time into account just to a limited degree and the following indicators are used with them:

- average annual return;
- average period of sending the investment;
- average percentage return.

The dynamic methods of evaluation take the time into consideration as well, as the risk factor, and correspond with the following indicators:

- net present value (NPV);
- internal returnability norm;
- profitability indicators;



Source: the figure is compiled by the author **Fig.2** *Classification of the methods for evaluation of real investment projects*Constantly actual remains the topic for the measurement of return on investment. Most of the companies and the institutional investors usually use the indicators:

- internal return rate (IRR);
- return of investment (ROI)/return of the hired capital (ROCE).

IRR - coefficient, used for the measurement of the risk, which gives the money flow of the project (usually for a period of 20 years with a terminal value, attributed by the application of a final multiple number), NPV equal to zero, i.e. the point at which the project becomes unprofitable. This number is usually measured related to the average weighed value of the company's capital (WACC) and if IRR is greater, the company will approve the project. This is the most frequently met method, adopted by the companies, especially in Europe¹⁵.

ROI/ROCE - the net present value of money currents of the project, divided by the investment price or the input capital. After that the result is compared with the desired returnability of the company, and if it is higher, it is approved. The difficulty of this method is that not all or a disproportionate amount of shared resources could be attributed to a project, as thus the real returnability is exaggerated. Besides, there exist a number of variations at the calculation of ROI, for example some investors simply examine the return of the used own capital or debt, but not their combination.

The desired IRR/ROI could vary from company to company and from region to region. Undoubtedly, the end decision will depend on the structure of the company and on the investor's risk profile. As an indicator, the average IRR for hotel investments in Europe varies between 12.4% to 16.1% with an average of 14% ¹⁶. It is obvious besides, that the discount rates, applied to the investment decisions depend on the corporate WACC or the desired level of returnability. Invariably in the most cases, it is bigger than the non-risk returnability, about which they say that 10 year debentures generate. To this a premium for reflection of the risk of fulfillment is added.

Indicators and methods for the research of economic efficiency of a sea hotel complex

The indicators constitute the qualitative characteristics of separate elements from the financial status or the financial results, obtained at the financial-accounting analysis of the activity of touristic enterprises. The application of the system of indicators as: Capital profitability, Absolute liquidity coefficient, Expenses per 1 bed /original cost/, Profit per 1 bed/room, Average income from accommodation/ travel, Average proceedings from 1 tourist /

¹⁵ Tank, D., Investment and Firm Value: Is There an Optimal Investment Level in Hotel Firms, 2017

¹⁶ Tank, D., Investment and Firm Value: Is There an Optimal Investment Level in Hotel Firms, 2017, p.72

for the measurement of the economic efficiency of a sea hotel complex creates conditions to objectively assess the economic efficiency. In addition the specific indicators are applicable:

- ✓ Profitability coefficient of proceeds from sales = Financial result / Net amount of the proceeds from sales;
- ✓ Profitability coefficient of the own capital = Balance profit/loss / Own capital;
- ✓ Absolute liquidity ratio = Money means/Current liabilities;
- ✓ Original cost of accommodation / room = Direct costs/Accommodations/ Room;
- ✓ Revenue per accommodation RevPar = Total revenue from the rooms / Total number of rooms;

Model for an assessment of the efficiency of a hotel complex

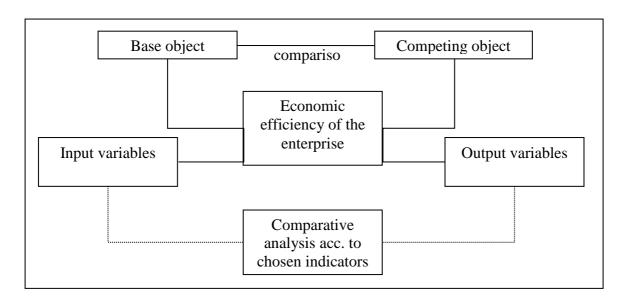
As a business sector, tourism has integral connections with all remaining branches and subsystems of the public system. Its quantitative parameters are researched with a priority, not only for the purposes of economic knowledge, but because of the necessity for its strategic role and significance to be revealed, in the world and national economy. A challenge before touristic enterprises is the construction of a mechanism, which to unite, and not to oppose the elements of mutual efficiency as a fundamental economic category.

In this sense, for the purposes of the dissertation, the emphasis is placed on the economic efficiency of the touristic enterprise, viewed in the context of its correlational dependencies with social and technological factors of the external and internal environment of the company, which define its basic components ¹⁷:

- Production efficiency production of the offered goods and services at the lowest and most attractive price;
- Efficiency of distribution the resources, necessary for the production of goods, are distributed according to the benefits, which they have for society;
- > Dynamic efficiency the ability of the company to react in a timely manner to the changes of consumer tastes.

In the context of the analysis of economic efficiency, the present elaboration is based on a comparative analysis between two competing hotels, according to the preliminary chosen comparison criteria (see fig. 3)

¹⁷Havyatt, D. The Components of Efficiency.//NETWORK: A Publication of the Australian Competition and Consumer Commission for the Utility Regulators Forum, Issue 62, March 2017, p. 1



Source: The figure is compiled by the author

Fig. 3 A model of a comparative analysis of the economic efficiency of sea hotel complexes

The fundamental goal of the management of every enterprise is to organize a stable market activity in a long-term prospective. The measurement of the fulfillment of this purpose could be accomplished through the choice of approaches for the summarizing of corporate data.

On grounds of the concept DEA examined above, we suggest an own set of variables for an analysis and evaluation of the efficiency of a hotel complex (see table 1).

Table 1
Variables for the measurement and evaluation of a hotel complex efficiency

Input variables:	Output variables:
Expenses for energy	Busyness
Expenses for the procurement of rooms	Proceeds from accommodation (rooms)
F&B (food and beverages) expenses	Proceeds from additional services
Expenses, connected with other activities	Proceeds from F&B (food and beverages)
Expenses for labor wages and social securities	Proceeds from events
	Total revenue

Source: The table is compiled by the author.

Second chapter. ANALYSIS OF THE ECONOMIC EFFICIENCY OF HOTEL COMPLEX ATLAS

In § 2.1. "Analysis of hotel complex Atlas in r.c. Golden sands" the basic characteristics have been examined of the internal environment of h.c. Atlas.

The internal environment of the enterprise is evaluated and defined in the context of the corporate capacity and the real possibilities regarding all resources, without which it could not function¹⁸:

o Physical and material resources. Hotel Atlas is situated 300 m away from the beach in r.c. Golden sands. The location is extremely attractive for vacation tourists, in proximity to

¹⁸ Mironova. N. Assessment of the internal environment during a preparation for application under OP "Innovations and competitiveness"//Management and sustainable development, edition 8, issue 72, 2018, Sofia

major natural and anthropogenic touristic resources, which guarantee a complete rest. The complex has a varied and well constructed material base, which is functionally efficiently distributed for the satisfaction of different necessities such as accommodation, meals, recreation, rehabilitation, sport, socialization and fulfillment of work duties. The main specialization of the hotel is the offering of a complex touristic product for mass sea tourism besides the immediate proximity to the beach strip, a competitive advantage are the constructed in the complex swimming pools, including such with children's sections, water slides, a wellness center, a fitness hall, beauty parlor, children's playgrounds and spots, etc. Alongside with that, the hotel has a base for MICE tourism as well. The equipment is oriented towards the accomplishment to a maximum degree of the guests' satisfaction - all necessary prerequisites for unproblematic sojourn have been provided (Wi-Fi access in the whole complex, a restaurant, a lobby bar, All inclusive packages, a rich assortment in the mini-bar, air conditioning, cable TV, etc.) and practically there is no necessity for the tourists to leave the territory of the complex in order to look for different services.

- o Human resources. Human capital is of strategic importance for the functioning of each enterprise. This regards particularly strongly tourist companies, mainly because of the integral and humane character of tourism as a phenomenon - the "live" contact and personalized service are at the basis of consumer satisfaction and the tourists' propensity to return to the chosen tourist place in the future. The management of hotel Atlas imposes a democratic leading style. The organizational structure of the object clearly and precisely testifies in favor of the correct and efficient distribution of the duties and responsibilities between the employees. management policy includes the development of programs for additional personnel motivation, in view of the increase of the personal efficiency of every employee. The seasonal exploitation, which in many cases appears to be a basic problem for the personnel availability, does not play the role of a demotivating factor. Annually qualified as well as unqualified employees are hired, as their responsibilities are distributed related to their personal and professional competences. For the year 2019 the average number of the personnel for the season is 151 people, and in 2021 it is 75 people, which again testifies about the negative influence of the COVID-19 crisis on the employment in hotel business. In view of the keeping of the highly qualified cadres with accumulated practical experience, the hotel management is preserved by year-round employment.
 - o Financial resources. The available money means are of special importance for the

functioning of each enterprise. On the basis of the accomplished financial results owners and management bodies make decisions for the forthcoming development of the company. A major task before the management is the search and discovery of the best opportunities for the financing of the activity. In the year 2019, the core capital of hotel Atlas is at the amount of 414 thousand BGN, and the received loans and interests are at the amount of 815 thousand BGN. During the year credits have been paid and granted, whereas the net money flows from financial activity are at the amount of 1081 thousand BGN, and the total ready money at the end of the period are 222 thousand BGN, which constitutes a decrease with 130 thousand BGN compared to the previous year¹⁹.

o Information resources. The available and presented in a timely manner information plays a substantial role for the efficiency of the communication policy of the tourist enterprise. Hotel Atlas has its own website and pages in the social networks with over 6,000 followers. (Facebook and Instagram), where the information, directed to real and potential consumers is always up-to-date and periodically updated. The informational security of the company itself regarding the competitors, suppliers and partners is of importance as well. Atlas makes monthly reports about its counterparts, and the "Marketing and reservations" department takes care of the bringing out of regular analyses of the competition.

o Intellectual resources and corporate culture. The corporate values, the intellectual property, the personnel's behavior and the established habits in the work process form the common corporate system-building culture. From importance for the efficiency, including the economic one, of the hotel, is the communication between the departments and the created microclimate in the object. A strategic role here has the management team, which coordinates and assigns the main work stereotype. Every employee has definite rights and obligations and is subject to one supervisor. The communication climate in hotel complex Atlas is guiding-supporting. The mostly oral orders and instructions are characteristic of this management style, as here the managers are lead by their own knowledge and judgment about their employees. A propensity to communication is observed, mutual understanding and tolerance towards all hired persons, independent of their qualification and competences. No cases of discrimination have been known, or manifestations of intolerance to the individual personal characteristics of the employees. As far as consumer perceptions of the intellectual

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¹⁹Financial statement of hotel complex Atlas, 2019

resource of the object are concerned, we can assert, that the hotel brand is already imposed at the market of the international mass sea tourism. The company's logo corresponds visually with the main colors of the hotel. From a psychological point of view, the orange color, which is met in the interior design of the building and in the hotel emblem, is a symbol of the warmth, joy, the sun and the pure energy - especially attractive sensations, turning into factors for making a decision for practicing a summer recreation by the sea.

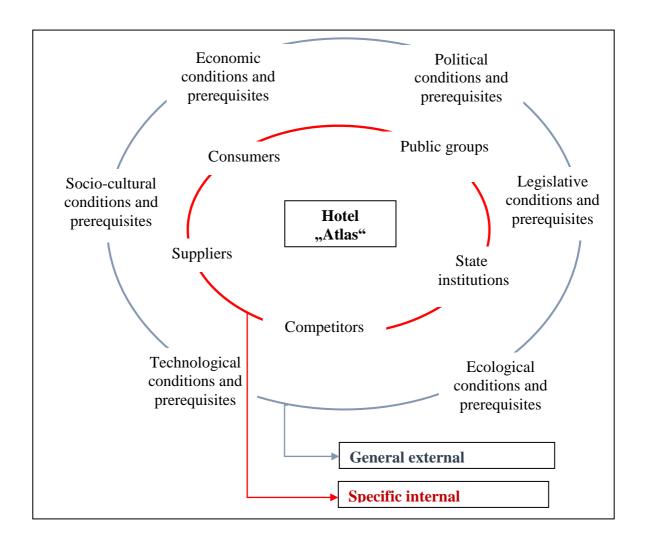
In § 2.2., Analysis of the external environment of hotel Atlas" an effort has been made for following of the influence of the external environment of hotel Atlas. The external environment of hotel Atlas can be presented as an original amalgamation from influences, which conditionally form two types of environment²⁰ (see fig. 4):

- macroenvironment (also called general external environment), consisting of factors which are found beyond the possibilities for control on the part of the enterprise;
- microenvironment (known in the literature as specific external environment or mesoenvironment), defined by Kotler and Armstrong as "forces, near to the company, which influence its ability to provide services to its customers the company itself, the marketing channels of the company, consumer markets, competitors, social communities" ²¹.

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²⁰ Vallen, G., Vallen, J., Check-In Check-Out: Managing Hotel Operations, 2017

²¹ Kotler, Ph., G. Armstrong, Marketing an introduction, New Jersey, 1990



Source: the figure is compiled by the author

Fig. 4 External environment of hotel complex "Atlas"

We can group the factors of the external environment of hotel Atlas into two basic categories:

- 1) Political, economic, sociocultural, technological, ecological and legal factors and conditions, researched in the present elaboration through the introduction of a PESTEL analysis;
- 2) Consumers, suppliers, competitors, social and public environment, examined for the purposes of the dissertation through the Porter analysis of the five competing forces.

Precisely in this connection through § 2.3 SWOT analysis of h.c. Atlas, the solving of two basic problems is set²²: firstly, it offers a synthesized variant of a diagnosis of the state of the

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²² Program for the development of tourism in municipality Varna 2014 - 2020. (https://varnacouncil.bg), 23.12.2021

external and internal environment of hotel Atlas, and secondly, it assists the development of strategic directions for the future development and increase of efficiency, including the economic as well, of the examined enterprise. Practically, the SWOT matrix is designated for forecasting of the positive and negative influences of the general and specific external environment, and for the identification and counteraction against the dangers, risks and difficulties before the future development of the object ²³ (see table 2)

Table 2

SWOT analysis of hotel complex Atlas

· · · · · · · · · · · · · · · · · · ·	sis of notet complex Allas
Strengths	Weaknesses
Attractive location	High prices of general and additional services
High level of the material base	Necessity of payment of the most of the
Good level of the service quality	additional services
Favorable climate and exit to the sea	Insufficient number of parking places
Competitive pricing policy	Insufficient number of sun loungers at the pool
Good financial indicators	The availability of just one restaurant
Applying of international standard ISO	Inefficient advertisement of the separate
High levels of RevPAR, ADR and	services - for example, SPA Center
busyness	Not well developed Marketing department
High EBITDA indicator	Insufficient volume of the direct reservations
	Inefficiency of the online channels for reviews
	and comments by guests
	Comparatively small traffic through the hotel
	website
	Imperfect site optimization (SEO)
	Threats for the development
	Construction of hotel complexes in the
Possibilities for development	proximity
Increasing of the number of parking	Withdrawal of tourists from the complex due
places	to the excessive construction
The establishment of an office for	High volume of pollution with construction
touristic excursions	waste materials
The establishment of a beach territory of	Limitation of the purchasing power of the
the hotel	population
Improvement of the efficiency of	Growth of unemployment
advertising in different media	Increasing the levels of inflation
Improvement of the possibilities for	
public announcement of new	
promotional campaigns	
The establishment of the position	
"Marketing expert " for research	

²³ Karadzhov, V. SWOT analysis of the international seasonal labor migrations of students in Bulgaria (student brigades) // Economics and Management, Volume: XII, Issue: 2, Year: 2016, p.183-196

and analysis of the consumer demand and the introduction of new services
Strengthening of the control over the personnel
Development of the channels for online reviews and comments by guests
Diversification of the booking channels increased increased optimization

A part of the consumer demand and the introduction of the control over the personnel

Var optimization

Economic travelenance

Insertion of the consumer demand and the introduction of the control over the personnel

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Economic losses as a result of the diminishing travel volumes due to COVID-19

Insecurity of the air transport from and to Varna as a consequence from the COVID-19 pandemics

Decreasing the levels of employment and the increase of unemployment, connected with COVID-19

Negative influence of COVID-19 on public life, the work organization and the psyche of the individual.

Source: the information in the table is summarized by the author

The information in the table clearly shows the superiority of the weaknesses over the strengths. Atlas has been functioning as a four-star hotel for five years. The necessity of the introduction of improvements definitely still exists for it.

In § 2.4. Assessment of the economic efficiency of a sea hotel complex following the example of h.c. Atlas in r.c. Golden sands the aim is the present state of the hotel complex to be examined, from the point of view of economic efficiency, and in this context, to place the following research questions:

Research question 1: What is the efficiency level in hotel complex Atlas?

It is necessary to investigate which characteristics of the hotel cause differences in the efficiency. The external environment is an important factor for the efficiency. The complex is situated close to the beach, in one of the most famous resorts in the country - r.c. Golden sands. The brand of the hotel is not suitable for research, since the base hotel also has an own brand and it would be difficult to make a comparison under this criteria. Another possibility could be a research of the difference between the corporate property, but both hotels are a corporate property. For that reason, a decision was made to check if there was a difference in efficiency among the hotels with a different size and quality. The number of stars of hotels is usually used as an evaluation of their quality²³.

In order to study which characteristics of the hotel cause deviations in the efficiency, the following questions are added:

Research question 2: Is there a difference in the efficiency between hotels with

²³ Israeli, A., Star rating and corporate affiliation: their influence on room price and performance of hotels in Israel, 2002, p. 18

different sizes?

Research question 3: Is there any difference in the efficiency between hotels with a different quality (stars category)?

Two methods have been applied in this study. Firstly, DEA is used for the calculation of the evaluations of the efficiency, followed by dispersion analysis, in order to determine if there are differences between the efficiency between hotels with a different size and stars category.

The main sources of data for this sample are a comparative assessment of the accounting information of the hotels and a questionnaire for non-accounting information of the hotels. Data about the hotel complex Atlas are used and about the base hotel Cassandra Palace (see table 3).

Table 3

Main characteristics of hotels Atlas and Cassandra Palace

Hotel Atlas Indicator Hotel Cassandra Palace Location Greece Bulgaria Category 4 stars 5 stars All Inclusive Form of service BB, HB, FB Number of rooms 273 260 Number of beds 573 536

Source: the information in the table has been systematized by the author

The results from the efficiency are very sensitive to a change of the values ²⁴, due to which a discovery of a potential change in the values is conducted. In DEA there are different ways of finding these residuals. A technique has been used, which was applied in previous researches²⁵. This method of discovery consists of two stages. The first step is to calculate the Mahalanobis distances²⁶ for all points of data of all the variables of the model (input and output variables). The Mahalanobis distance constitutes the distance between the data points, which determines the distribution of all data points and is calculated with the formula:

$$D_M(x) = \sqrt{((x - \mu)^T S^{(-1)}(x - \mu))}$$
 (1)

x is the vector of input and output variables of Atlas;

 μ is the vector from the average values of the input and output variables of Cassandra

²⁴ Donthu, N., Hershberger, E. K., & Osmonbekov, T., Benchmarking marketing productivity using data envelopment analysis, 2005, p. 23

²⁵Verardi, V., & Dehon, C., Multivariate outlier detection in Stata, 2010, p. 19

²⁶ Mahalanobis, P. C., On the generalised distance in statistics, 1936, p. 34

Palace:

S is the covariance matrix of input and output variables.

The Mahalanobis distance D2 follows a $\chi 2$ distribution. In the concrete case it is a distance from the multidimensional vector of the characteristics of hotel Atlas, to the multidimensional vector of the characteristics of hotel Cassandra Palace, as the second hotel is chosen as a control one. The data about it are accessible. Another possibility is to study the difference between the destination. Due to that reason, a decision was made to analyse if there were differences in the efficiency between hotels from different, but close destinations.

The second step is determination of the probability, connected with each data point, using a CDF $\chi 2$ distribution. The calculation of D $^{\circ}$ 2 is made in the SPSS in the regression module. If the probability of D $^{\circ}$ 2 to follow $\chi 2$ distribution is smaller than the threshold, the data point is more distant. The calculation of the probability, connected with D $^{\circ}$ 2, is made with the help of CDF for a distribution of $\chi 2$ with the formula: Pi = 1-CDF (Di2). The data are sorted according to the descending value of pi. The potential deviations threshold is p <0,01.

At the defining of the results from the efficiency, a CCR model oriented to the exit was applied, with a constant returnability from scales. It was decided an approach to be used, oriented towards the exit DEA, which maximizes the production with the same level of input data, while the oriented to the entrance approach works for the minimization of the input data, which can influence the level of the service quality, which could have serious consequences for the hotel.

From its initial development, the DEA methodology obtains an ever growing importance as an instrument for the assessment of efficiency and improvement of the efficiency of the production and service operations. The choice of the sample for the purposes of the present document is grounded on a database, maintained by ICAP Group, the biggest company, offering business information services at the Balkans. The year of the study is 2019. The construction of the database observes some strict criteria: in the first place, hotels which face similar seasonal models during the year; second, hotels belonging to the same category - 4 stars; and third, hotels, with a capacity of over 150 beds. The aforementioned criteria are chosen, in order to secure a homogeneous sample and to avoid wrong evaluations regarding the efficiency of the studied units. It is important to mention, that the homogeneity of the analyzed hotels is based on the following: they compete with each other on one and the same market; they have a common period of operation and an alike quality of services, factors, which are taken into account in the

conclusions of the elaboration.

After this process of selection, the analysis examines two hotel complexes which work independently. Taking into account the input and output variables, they are chosen so, that the results from this research to be comparable with the respective literature. The variables, which are chosen as input in the study, reflect the necessary resources for the achievement of concrete management goals. The number of employees measures the human resources in the hotel complex. The number of beds and the total operative costs of the hotel measure the used capital investments.

According to the main research thesis of the dissertation, the economic efficiency of the hotel complex and its increase, are determined by multifactors, related to the expenses and revenues from the activity of the object. The formulated thesis is concretized in the following three hypotheses:

Hypothesis 1. The efficiency of a sea hotel complex depends on the structure of the expenditures, in which the greatest weight have the expenses for labor wages and social insurances. From the analysis made, it becomes clear, that the expenses have to be decreased, for the achievement of a 100-percentage efficiency. The number of employees has to be increased by 21, in order to address the new needs of the hotel for the rendering of services to customers, as well as an improvement of the marketing, especially under the conditions of COVID-19 pandemics. It is seen from the analysis, that the expenses for considerations have the biggest percentage.

Hypothesis 2. The efficiency depends on the structure of revenues, in which the revenues from accommodation take the biggest part. The achievement of efficiency depends on the total revenues, which have to grow with 9534 units.

Hypothesis 3. The efficiency depends on the capacity of the sea hotel complex, expressed in the number of beds. According to the data of the analysis made, hotel complex Atlas, in order to reach a degree of 100% technical efficiency, has to increase its operative capacity with 7 beds (from 573 to 580, i.e. 1,28%).

On grounds of the presented analysis so far, we could make the following assumptions and conclusions:

First, in spite of the comparative diminishing of the number of employees as a reply to the COVID-19 challenge, the expenses for labor wages remain with the biggest volume, reflecting directly on the economic efficiency of the studied enterprise. In this sense, the formulated for the

purposes of the dissertation Hypothesis 1 is confirmed;

Second, the accomplishment of an economic efficiency is a function of the structure of the total revenues from the activity of the object. The analysis shows, that the revenue of the Atlas hotel should grow considerably, but at this stage the market cannot allow that. The growth in times of the average price will be irrelevant to the market conjuncture, and will lead to withdrawal of tourists. Due to this reason, Hypothesis 2 is rejected;

Third, as we already pointed, the types of efficiency do not have to be mutually excluded and to contradict one another, but to be in a continuous integration with each other. In this sense, the increase of the technical efficiency of the object researched will by all means lead to an increase of the economic efficiency as well, since any additional bed means an additional economic result for the hotel. On the basis of this conclusion, Hypothesis 3 is confirmed.

Third chapter. RECOMMENDATIONS FOR THE INCREASE OF THE ECONOMIC EFFICIENCY OF SEA HOTEL COMPLEX FOLLOWING THE EXAMPLE OF H.C. ATLAS

In § 3.1. "Tendencies in the development of hotel business in the context of the sea vacation tourism" we deduct the general tendencies, as well as the regional aspects of differentiation as a reaction to the consumer demands and external influences and directions have been drawn for the increase of economic efficiency of h.c. Atlas in r.c. Golden sands:

- ✓ Aging of the population and demographic changes;
- ✓ Migration;
- ✓ SPA and health tourism:
- ✓ Information and communication technologies;
- ✓ Climate changes;
- ✓ Diversification of tourist products;

In conclusion, the development of hotel business in the context of the sea vacation tourism will be strongly influenced by the most significant global tendencies, which will form the new market environment and the future of tourism.

The arguments mentioned so far help to formulate the following main conclusions:

First, the expansion of the season at the sea hotel complex Atlas could be realized by investment in halls and equipment for the conduction of conference events, which to be organized at the end of the season.

Second, investment in sports-entertaining equipment and playgrounds could be considered, which will be a prerequisite for the attraction of guests with such interests and traveling aim. An exact analysis of the returnability follows, due to a danger of not covering the investment for such type of equipment for the conducting of conference tourism, which due to COVID-19 is in standstill.

Third, but not least, in the beginning and end of the season incentive tourism is developed. Sea hotel complex Atlas has a capacity as a restaurant "a la carte" and equipment for the conduction of marriage events, which are preferably done in May, June and September.

§ 3.2. "Trends in the development of sea hotel complexes in Bulgaria" places an emphasis on the development of the sea hotel complex through the stimulation of construction of hotels and restaurants of high categories, the improvement of the connection between business and education regarding the training of highly qualified and motivated human resources, the use of contemporary technological solutions, stimulation of investment projects, which provide for the application of innovative and energy-saving technologies, the maintenance of ecologic equilibrium, etc. The combining of the said directions for the future development of the activity in the industry, with the big potential of touristic resources, will assist the improvement of the efficiency of the concrete sea hotel complex, as well as the destination for its positioning at the European and world market.

In § 3.3. "Recommendations for an increase of the economic efficiency of h.c. Atlas in r.c. Golden sands" we formulate recommendations in three directions: improvement of the investment process for the development of the object; optimization of the exploitation costs, optimization of the revenues of the object.

a) improvement of the investment process

Through the usage of the available base of hotel complex Atlas, innovative services for elderly people can be developed, based on leading technological solutions. The services will follow the EU concept for active and healthy aging and will be aimed at elderly people (pensioners) basically from Western Europe, and of course - from Bulgaria, to which possibilities for sojourn and balneo-healing will be offered.

The main items in the modernization of hotel complex Atlas would be the following:

- change of the lighting in the whole object with LED lighting;
- the construction of a platform for disabled people for the pools;
- renewal of the fitness hall with new cardio-appliances, meeting the necessities of the

modern tourist;

- the construction of a station for charging of electromobiles;
- implementation of Wi-Fi control from one device of the air conditioning, lighting, multimedia (hardware & software) in the rooms;
- refurnishing of the conference halls TV screens /video walls/, multimedia devices; multifunctional chairs;
- Mounting of photovoltaics and a thermal pump aiming an improvement of the energy efficiency;
- Installation of a system for salt electrolysis for the filtering of the water in the swimming pools, with the purpose of improvement of the water quality and optimization of the expenses for chemicals;
- The construction of a system in the hotel rooms, indicating the desires of the guests /,,please, clean", ,,please, do not disturb"/;

b) optimization of the exploitation costs

The basic directions for the limitation of the exploitation costs in the sea hotel complex are:

- The introduction of up-to-date program products with the organization of labor of the personnel checking in cards, summary reporting of the working time;
- Usage of an efficient system for a stepwise hiring of cadres according to the needs of the touristic enterprise here can be accepted as a criterion for the hiring of personnel in the different departments, according to the percentage of busyness in the sea hotel complex;
- Applying of flexible forms of payment for the labor and personnel motivation vouchers for food, additional material stimuli, bonuses for the booking department at the independent accommodation;
- ➤ Use of efficient control at the utilization of expenses and the end results from the activity of the sea hotel complex, etc.;
 - Construction of a system for control of the consumed electric power;
- Analysis of the outsourced services, their reduction and/or creation of units when possible for example to hire personnel for IT maintenance, not to pay for a subscription;

c) optimization of revenue

Leading directions for the increase of the revenues of the sea hotel complex are:

ran increase of the realized revenues from the sale of touristic services, the quality of

the touristic services and the touristic service;

- the achievement of a bigger duration of the touristic season;
- the increase of the busyness of the material base;
- the improvement of the personnel politics and organization of labor;
- > the improvement of the pricing policy;
- > application of concepts for optimization of the revenues .

The evaluation of the returnability of tourist products and services gives the opportunity for a revision of the pricing strategies of the touristic enterprise. For homogeneous tourist services a price index as a pure revenue from a service unit (night, transport or a price pro unit of service) can be used as an indicator for the tendencies in the price strategy of the tourist enterprise and the sector as a whole.²⁷

CONCLUSION

In the present research, a framework is proposed, for evaluation of the efficiency of a touristic object from the type hotel complex. The efficiency researched is for hotel complex Atlas, but it can be applied in other touristic enterprises, which have similar conditions, as a big dependence on tourism and an emphasis on sea tourism, which is limited to one season. The purpose of the elaboration is to present the results from the hotel efficiency as a source of information, necessary for the improvement of the business results and the provision of indicators for hotels, which have not reached a maximum efficiency. The finding of the most appropriate solution for the increase of the efficiency of the hotels is a very complex question, which has to be solved together with the accounting department and the experts in revenue and expenses management and the departments for marketing and sales. Only with an appropriate and balanced connection between the revenues and expenses management, hotels can achieve an optimum strategy for the increase of their efficiency, and can respectively increase the results from their activity. According to the suggested conceptual model, within the framework of the subject and object of the research all components have been analyzed.

In spite of some limitations in front of the development of the dissertation, the obtained results can be used for consecutive studies in field of economic efficiency of a sea hotel complex. The summarized quantitative and qualitative information could be interpreted additionally and compared through different research methods.

²⁷Neshkov, M., Kazandzhieva, V. Economics and management of the touristic enterprise. Varna: Science and economics, 2009., p. 177

IV. A REPORT ABOUT THE CONTRIBUTIONS OF THE DISSERTATION

In the dissertation the following contributions from scientific-applicable character are distinguished:

- ✓ the theory is systematized and the peculiarities of investment and economic efficiency of
 a sea hotel complex are deducted in the context of the concept for economic efficiency in
 tourism;
- ✓ an author's model is developed for the assessment of economic efficiency of a sea hotel complex on the basis of an analysis of a system of economic indicators]
- ✓ a comparative analysis is performed of the economic efficiency of a concrete sea hotel complex (h.c. Atlas in r.c. Golden sands) through systematizing of quantitative and qualitative data from different information sources;
- ✓ directions have been formulated for the increase of economic efficiency in the sea hotel complex.

V. LIST OF THE PUBLICATIONS RELATED TO THE DISSERTATION

Articles:

- 1. **Popova, L.** "Criteria for the evaluation of investments profitability in a hotel complex ", an article from a participation in a round table "Trends and challenges in front of global tourism", organized by department "Economics of tourism", UNWE Sofia 30-31.10.2015 Γ.
- 2. **Bardukova, L.**, EVALUATION CRITERIA OF INVESTMENTS PROFITABILITY IN A HOTEL COMPLEX, Eastern Academic Journal, Issue 3, pp. 34 41, October, 2021

Reports:

- 1. **Popova, L.,** "Tendencies in the investments in eco hotels", a report in an International scientific conference "Ecologic and rural tourism challenges and perspectives", organized by University "Professor Asen Zlatarov" Burgas, College for tourism, Association for ecologic tourism Burgas, 18 19.06.2015.
 - 2. **Popova, L.,** "Investments in tourism and preservation of the cultural heritage", a report from a participation in an international scientific conference of Southwest University Neofit Rilski Blagoevgrad, The scholars union, branch Blagoevgrad and the University of economics Varna with the topic "Cultural corridor Via Adriatica cultural tourism without borders", 15-19.10.2015.
 - 3. **Popova, L.,** "Tendencies of the investments in a sea hotel complex", report from a participation in an international scientific conference of the University of economics Varna with the topic "Tourism in the age of transformation", 03-05.1.2015
 - 4. **Bardukova, L.**, "Role of investments for the diminishing of seasonal employment fluctuations of a sea hotel complex", a report in the Black Sea touristic forum "Bulgaria touristic destinations for four seasons", organized by the Touristic chamber Varna, 13-15.10.2016.

DECLARATION FOR ORIGINALITY

I declare, that the present dissertation is a completely author's product and during its development there have not been used other publications and elaborations in violation of their copyright.