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SIMULATION MODELING OF SERVICE PROCESSES AT TOURIST ENTERPRISES

In the conditions of globalization of the world economy, intensive competition and close interaction between business partners, travel companies need to quickly and effectively adapt to changes in the market, innovate and introduce new technologies and approaches to customer service processes. Adverse changes in this economic sector were largely due to the COVID-19 pandemic and the quarantine restrictions at the international level, which led to a significant weakening of international tourist flows and a reduction in the activities of related service sectors. On the data of Hotel & Destination Consulting (HDC), the consequences of COVID-19 led to the loss of 67 million international tourists and about \$ 80 billion in revenue [1]. The activity of business structures in tourism was

deprived of flexibility to respond to rapid changes and reasonable anticipation of contrasting rates of activity, which necessitates the use of additional tools for the development of sound proposals for economic recovery of tourism enterprises. The issue gains relevance due to permanent dependence of the customer service level and its results in tourism enterprises. The use of simulation modeling of the service process should initiate a deeper and more knowledge-intensive study of the effectiveness and development potential of a tourism enterprise.

There is a wide range of current research on the applying simulation of business processes in the service field. The issue of simulation of individual processes in the service sector is highlighted in the works of the following scientists: A. Volianiuk, A. Gonchar, T.Oleshko, A.Verzun, P. Pavlenko and others. Many scientific works are devoted to the use of simulation modeling of technological, logistical processes and, in particular, the processes of direct customer service: Y. Taranenko, I. Fedorenko, V Samostian, L. Tahiiieva, V. Chyrva and others.

The goal of the study is to apply the method of simulation to customer service processes at a tourist enterprise to clarify the prospects of this analytical tool and build a model to improve the efficiency of a tourist enterprise.

In modern conditions of socio-economic changes of the Ukrainian and world tourist sphere, new features of relationship between participants of the tourist market (tourism operators, tourism agents (sellers) and clients (buyers)) are formed: [2]. An important and one of the crucial aspects of tour sales is the service process, its quality characteristics and the right algorithm to attract customers. Tourist service occurs via communication of tour managers with clients through direct or indirect (via IT) communication [3].

The goal of simulation modeling, which is based on experimental and applied methodology [4], in the field of tourism is the following: description of the behavior of the system of a tourism enterprise service process; construction of theory and hypotheses that can explain the behavior of clients of a tourism enterprise; the use of this theory to predict the future behavior of the system, i.e. those effects that are caused by changes in

the system or changes in the ways it operates.

The peculiarities of the simulation modeling of the processes of servicing the future clients of a tourism enterprise include the fact that the base will be formed in advance, which is based on the results of a tourism company for the past years. Based on the obtained results, an algorithm for selecting a tourist product will be formed; and it will save time, expand the range of services and increase customer satisfaction.

The process of a simulation model forming for effective customer service of a tourism enterprise is shown in Fig. 1. Based on the parameters of the formed customer information base and with AnyLogic software, the relationships between objects were described, a simulation model was launched, and a graphical interpretation of the service process of a tourism company was obtained, in which a customer moves through all stages of selection and design of a tourist trip. This model can be repeated indefinitely, until it is stopped by the initiator. In fact, the obtained value is relevant to the date of a stop.

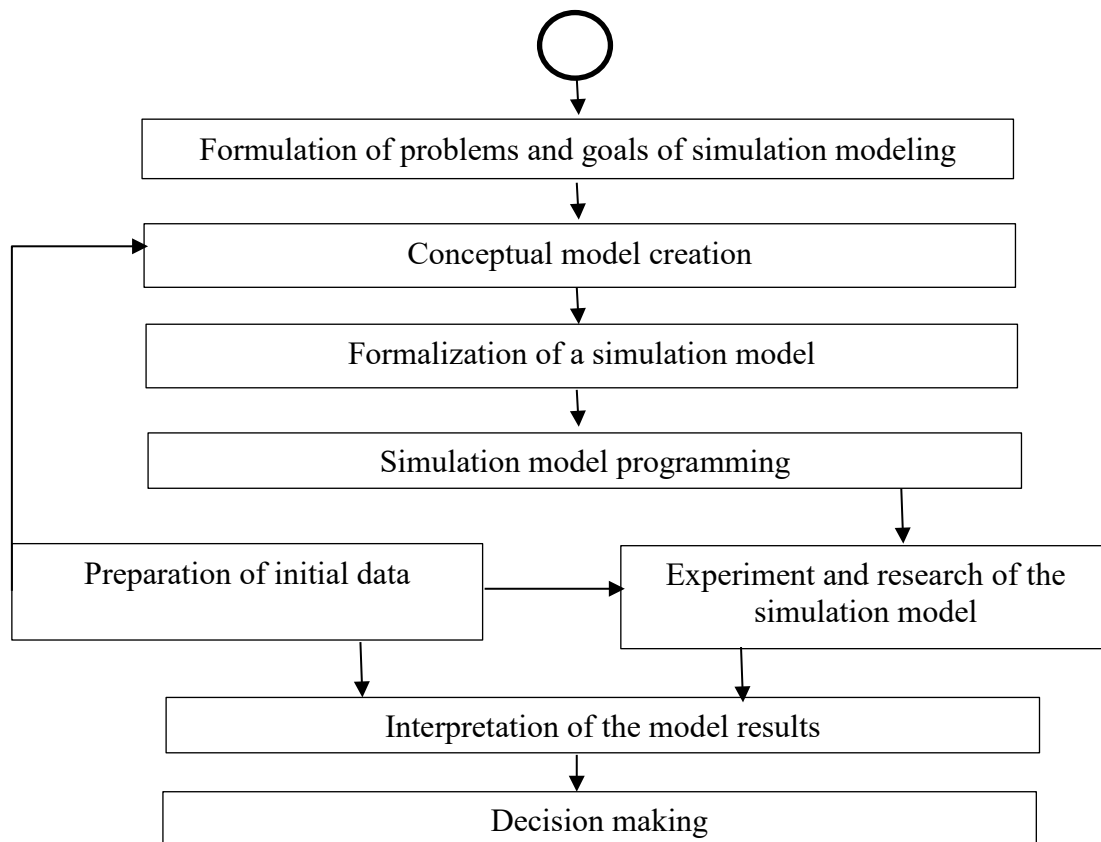


Fig. 1. Formation of a simulation model of customer service processes of a tourism enterprise (Author's elaboration)

When building a simulation model, those processes are highlighted that can be improved, and which do not have high expert assessment. In this case, they are the marketing activities of an enterprise (direct advertising), the qualifications of employees, the number of employees at the site, information support at the contract signing, the breadth of the service range. A slider will be attached to each of them, which will allow adjusting their values.

When performing the experiment and changing the values of the processes listed earlier, it was evident how their change affects the degree of customer satisfaction, increasing the number of potential customers and concluding new agreements.

Running the model of processes of customer service on a tourism enterprise through the compiler, the simulation model of work of travel firm was received (fig. 2).

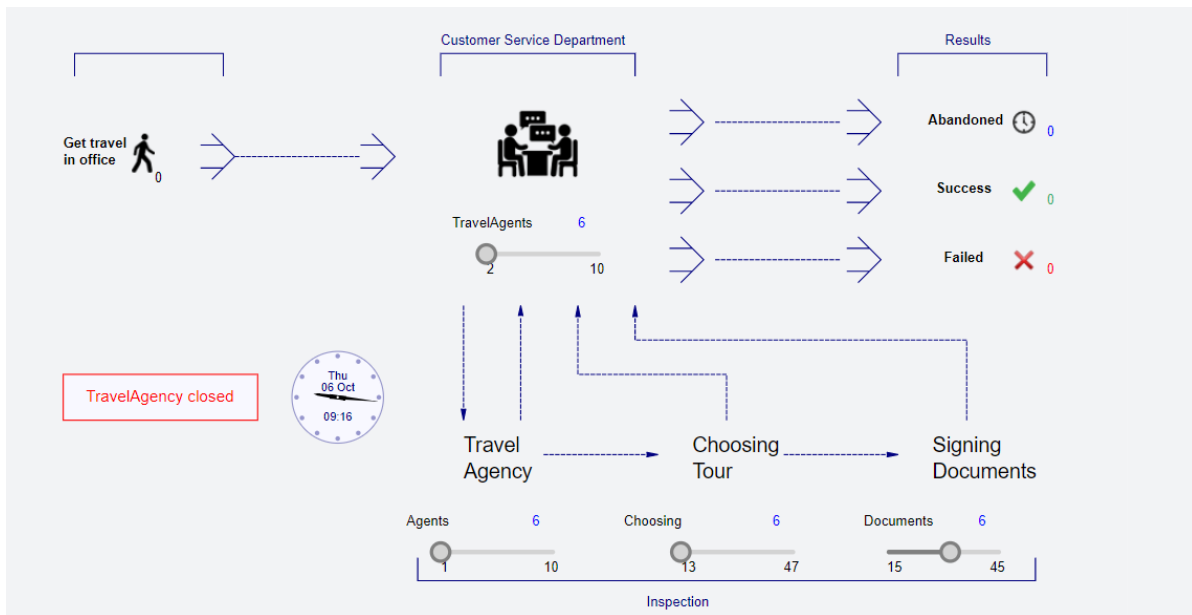


Fig. 2. Simulation model of a tourism enterprise (Author's elaboration)

By changing the parameters, namely, increasing the range of tourism services, expanding the countries with which the company cooperates, and reducing the time spent on contracts, the number of successful transactions increased to 20 out of 11, comparing with a prior mode before the changes. After introducing two auxiliary variables on the

active object class diagram, - the influence of direct advertising and the influence of communication of potential customers with those who have already bought these services, graphical interpretation of simulation results showed that a tourism enterprise may gain 621 new loyal customers in one year in real conditions through active marketing influence.

To sum up, simulation modeling allows demonstrate the performance of a tourism company's business processes as they are in in real conditions, taking into account all resource costs. As a result of such a system function, one can estimate the execution time of either one or a whole group of business processes. During the research, a structural scheme of execution was developed, according to which a simulation model of customer service processes of a tourism enterprise was built and implemented by AnyLogic software. According to the results of the conducted experiments, actions which will increase the number of customers and successful transactions and reduce service time have been identified. Such opportunities will allow a tourism company to accumulate reserves for capacity development under different management conditions and flexibly forecast its adaptive activities.

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