Fuzzy Model for Adjusting Stakeholder Engagement Strategies of a Company That Has Joined a Regional Strategic Alliance

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Abstract

Introduction. The relevance of the study lies in the need to support managerial decision-making in the field of interaction between the participants in regional strategic alliances. The purpose of the article is to develop a method for adjusting strategies for interaction with stakeholders for an organization that has joined a regional strategic alliance.

Materials and Methods. The proposed method is based on a fuzzy model of choosing strategies for the interaction of an organization with stakeholders before and after the entry into the alliance. The quantitative values of the relationship characteristics within the model framework are estimated for each resource component participating in the resource exchange of stakeholders with the organization, using a base of fuzzy production rules and a fuzzy inference algorithm.

Results. It presents the main difference between the model and other well-known models for evaluating the characteristics of relations of an organization with stakeholders. The method is based on the assumption of significant changes in the characteristics of relations with stakeholders due to the entry of an organization into a strategic alliance. The paper assumes that these changes, in turn, lead to significant changes in the weighting coefficients of the feasibility of using various types of strategies for the interaction of an organization with stakeholders. The developed tools are tested on the example of the experience industry of territory – a regional strategic alliance between the Shtykovskie Prudy art park and the Tokyo restaurant chain (Primorye Territory). The paper depicts the change of relations with the stakeholders of the art park due to its joining the alliance. Besides, the paper shows how the expediency of using different types of strategies for the organization’s interaction with stakeholders changes. The paper focuses on identifying further directions of the development.

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Discussion and Conclusion. The results of the work can be useful to specialists in the field of management of regional strategic alliances, in particular, employees of the tourism administration, the business community, scientific and pedagogical personnel in the relevant field, and can be used in the training of specialists of higher and secondary professional education in strategic management.

Keywords: strategic alliance, strategies for interaction with stakeholders, fuzzy model, experience industry of a territory, region, Mamdani algorithm

Conflict of interests. The authors declare that there is not conflict of interest.


Научная статья

Нечеткая модель корректировки стратегий взаимодействия со стейкхолдерами организации, вступившей в региональный стратегический альянс

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Аннотация

Введение. Актуальность исследования заключается в необходимости разработки инструментов поддержки принятия управленческих решений в сфере взаимодействия участников региональных стратегических альянсов. Цель статьи – на основе проведенного исследования разработать метод корректировки стратегий взаимодействия со стейкхолдерами для организации, вошедшей в региональный стратегический альянс.

Модели и методы. Предложенный метод базируется на нечеткой модели выбора стратегий взаимодействия организации со стейкхолдерами до и после ее вступления в альянс. Оценка количественных значений характеристик отношений в рамках модели осуществляется по каждой ресурсной компоненте, участвующей в ресурсном обмене стейкхолдеров с организацией, с использованием базы нечетких продукционных правил и алгоритма нечеткого вывода.

Результаты исследования. Спроектирована модель оценки характеристик отношений организаций со стейкхолдерами. В основе модели лежит предположение о значимых изменениях характеристик отношений со стейкхолдерами в результате вступления в альянс. Предполагается, что это приводит к значимым переменам весовых коэффициентов целесообразности использования различных типов стратегий взаимодействия организации со стейкхолдерами. Разработанный инструментарий апробирован на примере индустрии впечатлений территории – регионального стратегического альянса между арт-парком «Штыковские пруды» и сетью ресторанов «Токио» (Приморский край). Показано, как именно изменяются отношения со стейкхолдерами арт-парка в результате его вступления в альянс. Также обозначено, как изменяется целесообразность использования различных типов
Introduction. Cooperation and interorganizational interaction play an essential role in the strategic management of modern organizations. The entertainment/experience industry, which includes tourism, leisure enterprises, public catering, cultural institutions, is of significant interest for the empirical study of strategic interorganizational interaction. As a rule, the services of the experience industry are not an autonomous product (service) but a multivariate value chain, in the formation of which several organizations (stakeholders) participate. Value chain participants of the experience industry carry out their activities and cooperate in a particular territory (destination, region), which defines the enclave of interorganizational interaction [1]. In this regard, interorganizational interaction studies in the experience industry at the regional level acquire significant relevance and significance. Studies of several Russian and foreign scholars prove that effective interaction of the companies and other stakeholders is necessary for the sustainable development of the destination experience industry. It ensures the support and development of the destination brand (territorial, regional) and the achievement of other economic and social effects [2–9]. Therefore, the destination experience industry is a group of geographically concentrated companies that simultaneously compete and interact with each other to achieve common goals to increase the attractiveness of the territory (region) for consumers of entertainment industry services [10–12].

The paper focuses on developing and testing a method for adjusting strategies for interaction with stakeholders of an organization that has joined a strategic alliance.

Literature Review. Cooperation in the entertainment industry can be both short-term and long-term [13]. The second cooperation type leads to the formation of strategic alliances [14–19]. The authors define a strategic alliance as an interorganizational interaction that ensures the creation of long-term (sustainable) competitive advantages for participating companies. Besides, the authors emphasize that the stability of the created competitive advantages distinguishes strategic alliances from tactical partnerships and standard long-term contracts. Therefore, experience
industry companies entering a strategic alliance pursue the goal of increasing their competitive potential (acquiring additional competitive advantages). They are not only looking for partners to form a value chain [20; 21]. Therefore, participation in a strategic alliance allows companies to achieve common goals (sustainable development and promotion of the destination brand, etc.) and at the same time receive significant individual benefits – competitive advantages\(^1\) [22–27].

Simultaneously, the different nature of competitive and cooperative strategies in the strategic alliances being created can cause potential conflicts between the participants. In this regard, the interaction strategies of the organizations that are members of the alliance with their stakeholders play a unique role [28]. At the same time, it is necessary to comprehend the existing differences in interaction with stakeholders for organizations that are and are not members of the alliance. When an organization joins the alliance, the characteristics of its relations with stakeholders (as well as between the stakeholders themselves) may significantly change. Simultaneously, one should take into consideration the possible relations of stakeholders with other organizations of the alliance.

A group of scholars proposes a fuzzy model that allows the authors to assess the impact of a strategic alliance – which includes an organization – on changes in the characteristics of relations between the organization and its stakeholders. It also provides the possibility to take these changes into account when choosing interaction strategies [29]. The development of this model can be carried out in two directions.

First of all, assessing the characteristics of the relationship can be made for individual resources exchanged between stakeholders and the organization. The demand for an appropriate modification of the model is due to the specificity of resource relations between companies in the alliance (including the use of each other’s resources). Additionally, individual resource components in the bundles of resources that companies exchange between themselves and stakeholders may differ significantly regarding their importance to the recipient.

Second, the quantitative assessment of the essential characteristics of relations takes place expertly in the conditions of incomplete information on goals, interests, and expectations of stakeholders. Accordingly, calculating the characteristics of the next-level relationships based on the specified functional dependencies has many disadvantages. In this regard, one should use the bases of fuzzy production rules and fuzzy inference algorithms to obtain clear values of the characteristics of relations, based on which the weight coefficients of the types of interaction strategies are calculated in the future.

**Materials and Methods.** Research goals include the following:

- development of a modified fuzzy model for calculating the characteristics of the relations of a company with stakeholders (considering the characteristics of the relations for each resource component using the fuzzy inference algorithm);

– development of a modified fuzzy model for calculating the weighting coefficients of the feasibility of using the types of strategies for the interaction of an organization with stakeholders before and after joining the strategic alliance;
– approbation of models on the example of a regional strategic alliance in the experience industry.

Figure depicts the basic scheme for choosing strategies for the interaction of an organization with stakeholders when joining a strategic alliance.

1. Evaluating the fuzzy characteristics of the relations between an organization and the stakeholders for each individual resource component before joining a strategic alliance

2. Evaluating the fuzzy characteristics of the strategic alliance in relation to each individual resource component

3. Evaluating the fuzzy characteristics of relations between an organization and the stakeholders for each individual resource after forming a strategic alliance using the fuzzy production rule base

4. Reduction of evaluations of the characteristics of relations for individual resource components (before and after forming a strategic alliance) to integral evaluations, taking into account the significance (weights) of resource components for stakeholders and an organization

5. Determining transparent evaluation of the degree of desire to change relations between an organization and stakeholders in relation to each other using the fuzzy production rule base

6. Calculation of the appropriateness of using different interaction strategies with stakeholders before and after an organization joins the strategic alliance

7. Determining the most appropriate strategies for interacting with stakeholders before and after the entry of an organization into a strategic alliance

Figure. The basic scheme for choosing the types of strategies for interaction with stakeholders of an organization that has joined a strategic alliance

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2 Hereinafter in the article, all figures and tables are compiled by the authors.
At the first stage, the characteristics of the relationship between the organization and stakeholders (the degree of satisfaction, quantitative assessment of expectations, the degree of mutual influence) are evaluated by experts for each individual resource before forming a strategic alliance. Verbal assessments are carried out according to specific linguistic scales, followed by a transition into fuzzy sets. Several scholars provide examples of scales and membership functions of the corresponding fuzzy sets [30].

At the second stage, experts evaluate the characteristics of the strategic alliance for each individual resource (the degree of influence of the alliance on changes in satisfaction, the degree of influence of the alliance on changes in expectations, the degree of influence of the alliance on changes in mutual influence, the degree of stability of the alliance). There are linguistic scales and the membership function of the corresponding fuzzy sets in the particular scholarly paper [29].

At the third stage, a base of fuzzy production rules forms based on which for each individual resource component the fuzzy characteristics of the relations between the organization and stakeholders after forming a strategic alliance are evaluated.

At the fourth stage, the obtained evaluations of the characteristics of relations for individual resource components (before and after forming a strategic alliance) are reduced to integral evaluations. They consider the significance (weights) of the resource components for a particular stakeholder and organization.

At the fifth stage, a base of fuzzy production rules forms based on which, using the Mamdani fuzzy inference algorithm, estimates of the degrees of desire for changes in the relations of the organization and specific groups of stakeholders concerning each other are determined³.

At the sixth stage, based on the obtained assessments of the degree of desire for changes in relations and assessments of the degree of mutual influence, the feasibility of using the types of interaction strategies with stakeholder groups before and after the entry into the strategic alliance of an organization is calculated.

At the last stage, based on the obtained results, the authors determine in respect of which stakeholders it is advisable to change the type of interaction strategy after the organization joins the strategic alliance.

Results. The proposed model has been tested on the example of a regional strategic alliance between the Shtykovskie Prudy art park, located in Shtykovo of the Shkotovsky district of Primorye Territory, and the Tokyo restaurant chain. The Shtykovskie Prudy Art Park was established in 2007. Art Park provides its clients with all kinds of outdoor activities. At the beginning of 2017, Art Park entered into a strategic alliance with the Tokyo restaurant chain. The strategic partnership of these organizations implies the following. The Art Park provides Tokyo with the

opportunity to trade products on the territory of the park free of charge. In turn, Tokyo places ads on its website regarding the events taking place on the territory of the park, which contributes to an increase in the number of visitors to the park. As a result, the revenues of both the restaurant chain and the art park increase. Accordingly, all key regional stakeholders also benefit: state authorities and local administration due to an increase in incoming taxes and the new jobs creation (reduction of unemployment and social tension); medium and small businesses by increasing the influx of park visitors, who, among other things, consume more products from other local enterprises; the local population due to the new jobs emergence and an income increase; public and non-profit organizations that receive additional opportunities to draw attention to their regional projects.

The authors demonstrate the impact of the entry of the Art Park into this strategic alliance on its relations with the “Clients” and “Employees” stakeholder groups. Table 1 depicts the average expert assessments of the characteristics of the relationship between stakeholders and the Art Park before forming a strategic alliance with the restaurant chain (in 2017) for each resource that stakeholders receive from the art park.

Representatives of these groups of stakeholders, namely employees and regular customers of the art park, acted as experts. The group of expert employees included current employees of the park, employed until 2017. The selection of such employees was carried out on the maximum possible coverage basis of job positions, from top managers to ordinary workers (administrators, waiters, cashiers, baristas, masters of creative workshops, animators, gardeners, cooks, animators-actors, observers). The expert clients group included guests of the art park who regularly visit the location since 2016 or earlier. At the same time, the first group (experts from among the employees) assessed not only the characteristics of the company’s relations with its “own” group of stakeholders, but also the characteristics of the art park’s relations with the “clients” group. The fact is that in the course of their professional activities, most employees directly interact with the guests and can assess their satisfaction and expectations. In this regard, the number of the first group of experts (15 people) exceeded the number of the second expert group (10 people). The consistency of the experts’ answers was assessed. All respondents were informed about the purpose of the study and expressed their willingness (consent) to cooperate.

One assumes that quantitative assessments of the characteristics of relations with stakeholders of an organization that has joined a strategic alliance depend on quantitative assessments of these characteristics before the organization joins the alliance and the corresponding characteristics of the alliance. The work of a group of scholars provides the fragment of a fuzzy base of rules for assessing the degree of satisfaction of a stakeholder group with an organization after joining a strategic alliance [29]. To obtain a quantitative assessment of the degree of satisfaction of a stakeholder group with a specific resource after the organization joins the alliance, one can use the same rule base.
### Table 1. Expert assessments of the characteristics of the relations of the Art Park with stakeholders before/after the entry of the company into the strategic alliance

<table>
<thead>
<tr>
<th>Resource</th>
<th>The significance of the resource for a stakeholder (the weight of the resource)</th>
<th>The degree of satisfaction of a stakeholder group with the received resource</th>
<th>Assessment of the expectations of a stakeholder group concerning a resource</th>
<th>The degree of mutual influence of the company and a stakeholder group on this resource</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Resources that employees receive from the Art Park</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial benefits (wages, bonuses, and other monetary incentives)</td>
<td>0.4</td>
<td>ML/MH</td>
<td>PL/PM</td>
<td>CM</td>
</tr>
<tr>
<td>Self-development (career growth, professional training, personal promotion, etc.)</td>
<td>0.1</td>
<td>M/MH</td>
<td>NE/PL</td>
<td>CL</td>
</tr>
<tr>
<td>Social benefits (paid holidays, sick leave, discounts for staff on company services, etc.)</td>
<td>0.2</td>
<td>MH/MH</td>
<td>NE/NE</td>
<td>NE</td>
</tr>
<tr>
<td>Working conditions (delivery to work by the company transport, catering at the workplace, working conditions, convenient schedule, etc.)</td>
<td>0.3</td>
<td>MH/MH</td>
<td>PL/PL</td>
<td>NE</td>
</tr>
<tr>
<td><strong>Resources that clients receive from the Art Park</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of services</td>
<td>0.3</td>
<td>MH/MH</td>
<td>PL/PM</td>
<td>SL</td>
</tr>
<tr>
<td>The possibility of choice (a variety of entertainment, a different range of prices for visitors of different incomes)</td>
<td>0.5</td>
<td>ML/MH</td>
<td>PM/PH</td>
<td>CM</td>
</tr>
<tr>
<td>Hygiene and ecology (aesthetics of the park, availability of places and hygiene products, treatment of the territory against insects, organization of medical care, etc.)</td>
<td>0.2</td>
<td>H/H</td>
<td>NE/NE</td>
<td>SL</td>
</tr>
</tbody>
</table>

*Notes: ML – moderate dissatisfaction; MH – moderate satisfaction; M – partial satisfaction, partial dissatisfaction; H – significant satisfaction; PL – slight improvement; PM – significant improvement; PH – radical improvement; CM – the influence of the company on the group of stakeholders is much greater than the influence of the group of stakeholders on the company; NE – the mutual influence of the company and the group of stakeholders is almost the same; CL – the influence of the company on the group of stakeholders is moderately greater than the influence of the group of stakeholders on the company; SL – the influence of the group of stakeholders on the company is moderately greater than the influence of the company on the group of stakeholders.*
The authors point out that similar fuzzy rule bases can be built to assess the expectations of a stakeholder group concerning some specific resource received from the organization after joining the alliance and the degree of mutual influence of the stakeholder group and the organization on this resource after joining the alliance. Table 1 shows the evaluations of the characteristics of relations with the Art Park stakeholders after joining the strategic alliance obtained based on these rule bases.

The evaluations of the characteristics of relations for individual resources presented in Table 1 can be reduced to integral estimates concerning resource significance (weights).

Table 2 demonstrates the membership functions of fuzzy integral evaluations of the characteristics of relations with art park stakeholders before and after joining the alliance and the values of the centers of gravity of the corresponding fuzzy sets.

The following formula (1) has been previously used to identify the degree of desire for changes in the relations of the $l$st stakeholder group concerning the organization ($G_1$) and the organization concerning the $l$stakeholder group ($G_2$).

$$G_j^l = 5 - \left( U_j^l \cdot c_1^l + O_j^l \cdot c_2^l \right), c_1^l + c_2^l = 1, j \in \{1, 2\}, l = \overline{1,m},$$

where $c_1^l, c_2^l$ are normalized weights of satisfaction and expectations for the balance of relationship; $U_j^l$ is satisfaction of the $l$stakeholder group of the organization (when $j = 1$) and satisfaction with the organization of the $l$stakeholder group (with $j = 2$); $O_j^l$ is the quantitative assessment of the expectations of the $l$stakeholder group of the organization (with $j = 1$) and quantification of the expectations of the organization in relation to the $l$stakeholder group (with $j = 2$); $m$ is the number of stakeholder groups.

This dependence allows the authors to calculate the quantitative values of the degrees of desire for changes in a transparent or fuzzy form (depending on the form in which the satisfaction and expectations evaluations are presented).

This model proposes to determine transparent values of the degrees of desire for changes utilizing the Mamdani algorithm. First of all, one should form a base of appropriate fuzzy production rules. For example, if a stakeholder is “completely satisfied” and their expectations are such that the situation will “radically improve,” then the degree of desire for changes will be “very low.” The authors note that a linguistic scale with possible verbal evaluations of the fuzzy variable entitled “the degree of desire for changes” and the corresponding membership functions are prominent [30]. For example, for the “Clients” group, the authors obtain the following transparent evaluations of the degree of satisfaction (1.02) and expectations (3.98) (Table 2). By using the Mamdani algorithm with such input variables, one can obtain a transparent value of the degree of desire for changes of the “Clients” group concerning the Art Park equal to 1.86.
Table 2. Membership functions of fuzzy integral evaluations of the characteristics of relations with Art Park stakeholders before/after joining the alliance

<table>
<thead>
<tr>
<th>$X$ values</th>
<th>The degree of employee satisfaction with the organization</th>
<th>Assessment of employees’ expectations for the organization</th>
<th>The degree of mutual influence of the organization and employees</th>
<th>The degree of customer satisfaction with the organization</th>
<th>Assessment of customer expectations in relation to the organization</th>
<th>The degree of mutual influence of the organization and customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>-5</td>
<td>0.12/0</td>
<td>0/0</td>
<td>0</td>
<td>0.15/0</td>
<td>0/0</td>
<td>0.15</td>
</tr>
<tr>
<td>-4</td>
<td>0.25/0</td>
<td>0.03/0.02</td>
<td>0.05</td>
<td>0.30/0</td>
<td>0.02/0</td>
<td>0.30</td>
</tr>
<tr>
<td>-3</td>
<td>0.43/0</td>
<td>0.09/0.06</td>
<td>0.15</td>
<td>0.50/0</td>
<td>0.06/0</td>
<td>0.50</td>
</tr>
<tr>
<td>-2</td>
<td>0.35/0.10</td>
<td>0.25/0.15</td>
<td>0.31</td>
<td>0.33/0.28</td>
<td>0.15/0</td>
<td>0.30</td>
</tr>
<tr>
<td>-1</td>
<td>0.37/0.30</td>
<td>0.51/0.29</td>
<td>0.53</td>
<td>0.24/0.44</td>
<td>0.29/0.06</td>
<td>0.15</td>
</tr>
<tr>
<td>0</td>
<td>0.40/0.60</td>
<td>0.60/0.34</td>
<td>0.40</td>
<td>0.25/0.50</td>
<td>0.35/0.07</td>
<td>0.10</td>
</tr>
<tr>
<td>1</td>
<td>0.5/1.00</td>
<td>0.79/0.48</td>
<td>0.37</td>
<td>0.36/0.86</td>
<td>0.51/0.03</td>
<td>0.15</td>
</tr>
<tr>
<td>2</td>
<td>0.31/0.60</td>
<td>0.45/0.44</td>
<td>0.35</td>
<td>0.30/0.60</td>
<td>0.50/0.08</td>
<td>0.30</td>
</tr>
<tr>
<td>3</td>
<td>0.15/0.30</td>
<td>0.21/0.49</td>
<td>0.43</td>
<td>0.29/0.44</td>
<td>0.59/0.11</td>
<td>0.50</td>
</tr>
<tr>
<td>4</td>
<td>0.05/0.10</td>
<td>0.07/0.27</td>
<td>0.25</td>
<td>0.15/0.20</td>
<td>0.33/0.9</td>
<td>0.30</td>
</tr>
<tr>
<td>5</td>
<td>0/0</td>
<td>0/0.12</td>
<td>0.12</td>
<td>0.06/0.06</td>
<td>0.15/0.85</td>
<td>0.15</td>
</tr>
<tr>
<td>Center of gravity</td>
<td>-0.73/1.00</td>
<td>0.40/1.38</td>
<td>0.73</td>
<td>-0.55/1.02</td>
<td>1.53/3.98</td>
<td>0</td>
</tr>
</tbody>
</table>
Furthermore, according to the formulas to calculate the weight coefficients of the appropriateness of different types of strategies of interaction with stakeholders [30], one can find weight coefficient appropriateness of the strategy to address the queries ($w_1$), protection ($w_2$), effects ($w_3$), cooperation ($w_4$) and restraint ($w_5$) before and after the entry of the Art Park into the alliance (Table 3).

The presented approbation of the model allows us to state its practical suitability and the possibility of using it to study interaction and substantiate strategies for further cooperation with regional stakeholders, including for larger strategic alliances of the entertainment/experience industry at the regional level.

**Discussion and Conclusion.** The obtained results confirm the authors’ assumptions concerning the change in relations with the stakeholders of an organization that has joined the strategic alliance. For both considered stakeholder groups – “Clients” and “Employees” – there is a significant increase in their satisfaction and positive expectations regarding the Art Park (Table 2). There is also a significant decrease in the degree of desire for changes on the part of these groups in relation to the Art Park. The decrease in the degree of desire for changes on the part of the art park in relation to these groups of stakeholders is not significant; however, it occurs (Table 3). The mentioned factor indicates a more balanced relationship with the primary stakeholders of the Art Park after it enters into a strategic alliance with a restaurant chain.

Besides, the assumption has been confirmed that the most appropriate types of strategies for interaction between the Art Park and stakeholders will change due to joining the alliance. Therefore, concerning the “Employees” group, after the company has joined the alliance, the most appropriate strategy is cooperation, while before joining the alliance, the most appropriate strategy has been restraint. The cooperation strategy has become the most appropriate for the Art Park and in relation to the “Clients” group, while before joining the alliance, this type of strategy has had equal weight with the protection strategy. In addition, the authors note that the weight coefficients of all types of interaction strategies have changed to varying

<table>
<thead>
<tr>
<th>Stakeholder group</th>
<th>Employees</th>
<th>Clients</th>
</tr>
</thead>
<tbody>
<tr>
<td>$G_1$</td>
<td>5.20/3.22</td>
<td>4.61/1.86</td>
</tr>
<tr>
<td>$G_2$</td>
<td>4.20/4.00</td>
<td>4.31/3.90</td>
</tr>
<tr>
<td>$w_1$</td>
<td>0.47/0.37</td>
<td>0.48/0.34</td>
</tr>
<tr>
<td>$w_2$</td>
<td>0.60/0.50</td>
<td>0.64/0.46</td>
</tr>
<tr>
<td>$w_3$</td>
<td>0.50/0.49</td>
<td>0.47/0.45</td>
</tr>
<tr>
<td>$w_4$</td>
<td>0.59/0.68</td>
<td>0.64/0.77</td>
</tr>
<tr>
<td>$w_5$</td>
<td>0.66/0.65</td>
<td>0.62/0.59</td>
</tr>
</tbody>
</table>
The weights of impact and restraint strategies have changed slightly, while the weights of the other three types of strategies have changed significantly. For example, the protection strategy for the “Clients” group that has had the most significant weight (along with the cooperation strategy) has “moved” to third or fourth place. The importance of this remark is due to the fact that, for various reasons, the decision-maker does not always choose strategies for interacting with stakeholders who possess the most significant weight. It is especially relevant if the gap between the weighting coefficients of the strategies that are in the first and second places is insignificant. Therefore, in relation to the “Clients” group, before the Art Park has joined the alliance, a protection strategy could have been chosen as an interaction strategy with a high probability. After the entry of the alliance company, such a probability is exceptionally insignificant. If, for some reason, a cooperation strategy is not chosen for this group of stakeholders, then, most likely, the decision-maker person will stop at a restraint strategy.

The significance of choosing the interaction strategy with stakeholders in the experience industry has a particular importance at the regional level. Effective and dynamic development of the experience industry (tourism, recreation and leisure services), based on mutually beneficial cooperation of its constituent entities, has a significant impact on the economic and social life of the region, allows us to consider this area as one of the promising areas of the regional economy specialization.

The paper develops a method for adjusting strategies for interaction with stakeholders of an organization that has joined a strategic alliance. The method is based on a fuzzy model of choosing strategies for the interaction of an organization with stakeholders before and after the entry of an organization into the alliance. This model, in turn, is based on a modified fuzzy model for calculating the characteristics of the relations of a company with its stakeholders. The primary difference between the mentioned model and the existing ones is as follows. The quantitative values of the relationship characteristics are estimated for each resource component involved in the resource exchange of stakeholders with the organization, using the base of fuzzy production rules and the fuzzy inference algorithm (Mamdani algorithm).

The authors test the proposed tools on the example of a strategic alliance in the experience industry of the territory. The authors show the change of relations with the stakeholders of the organization under consideration (the Art Park) as a result of its entry into the alliance. The authors also demonstrate the change of the expediency of using different types of strategies for the interaction of an organization with stakeholders.

Further development of the models can be carried out in the following directions. First of all, the possibility of revising the weighting coefficients of the resource components involved in the resource exchange of stakeholders with the organization, as well as the degrees of mutual influence for each resource component after the organization joins the strategic alliance, can be taken into account. Second, the models may introduce the possibility of considering changes in the
relations of stakeholder groups among themselves due to the entry of an organization into the alliance. Third, one can develop tools for adjusting the interaction strategies with the stakeholders of an organization at different stages of its life cycle.

In general, it is necessary to pay serious attention to the interorganizational and stakeholder interaction management in the entertainment/experience industry, which has a significant impact on both economic and social processes in society, at all levels of management (international, national and regional). The method developed with the help of a reliable scientific apparatus is in demand by all subjects of relations in a regional strategic alliance. It can be used by the administrations of the region, as well as those responsible for strategic management in regional alliances, to solve a wide range of tasks, including developing strategies, making managerial decisions in terms of policies to ensure effective interaction with stakeholders, and doing business.

REFERENCES


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