

## Assessing the Interaction between Non-Profit Organizations and the Municipal Management System



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**Abstract.** The work brings to the fore the issue of improving the effectiveness of the municipal management system with the help of non-profit organizations' resource. Our goal is to assess the interaction of non-profit organizations in the form of territorial public self-government with municipal administration subjects in the municipal management system of the city of Perm. The study hypothesis suggests that the activities of non-profit organizations in the form of territorial public self-government in the municipal management system should produce significant economic and managerial effects, thus increasing the effectiveness of the municipal management system and the municipal economy. Methodologically, the work is based on a synthesis of expert survey methods, factor analysis, and structural equation modeling (SEM). We obtained a number of significant results: we substantiated key scientific categories, defined

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the basic concept of interaction between non-profit organizations and subjects of municipal government, determined the boundaries of the municipal management system; worked out a methodology for assessing the interaction of non-profit organizations in the municipal management system and tested it on the example of organizations in the form of territorial public self-government in the city of Perm. In particular, we proved that the performance indicators of non-profit organizations in the aggregate of indicators of the use of additional resources and the population are consistently and significantly interconnected with territorial development indicators; interaction with the municipal management system is consistently and significantly interconnected with territorial development indicators; the activities of non-profit organizations are indirectly interconnected with indicators reflecting the development of the territory, due to the processes of interaction with the municipal management system. Thus, we show the presence of direct and indirect effects from the activities of non-profit organizations in the territory, arising in the process of interaction with subjects of municipal government. The presence of such effects substantiates the importance of the activities of non-profit organizations in the form of territorial public administration in addressing issues of local importance, in organizing and implementing local events, in attracting additional funds to solve socio-economic issues of the territory.

**Key words:** non-profit organization, territorial public self-government, municipal management system, municipal management subjects.

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### **Introduction**

The current economic situation in the Russian Federation urges all its economic sectors to activate reserves and search for growth points in achieving key strategic priorities. This necessitates the enhanced development of business entities and the “third sector”, which includes non-profit organizations. Taking into account all the variety of forms of non-profit organizations, we consider their totality as a significant resource, the use of which can increase the effectiveness of economic activity in the territory and contribute to economic growth.

Attracting such a resource in order to realize the potential of the territory requires development and testing of appropriate management mechanisms, which are based on the interaction of the non-profit sector with management entities at all economic levels (federal, regional, municipal). In this regard, the study of management practices of individual

non-profit organizations (hereinafter referred to as NPOs) and the processes of their interaction with subjects of municipal, regional, and federal government seems to be an urgent scientific problem. Its solution is ultimately focused on the formation of economic growth indicators, which are based on metrics reflecting the effectiveness of interaction and economic and managerial effects, primarily in municipalities.

The designated research field actualizes the issues of interaction between municipal government subjects and special forms of non-profit organizations capable of addressing a wide range of issues, accumulating territorial potentials and reserves, while obtaining significant economic and managerial effects. Such a statement of the question urged us to consider non-profit organizations in the form of territorial public self-government

(hereinafter referred to as TPSG), which have significant potential for interaction in the municipal economy, becoming one of the main subjects of economic activity. Thus, according to the annual joint monitoring of the National Association of Territorial Public Self-Government and the Ministry of Justice of the Russian Federation, there are more than 34,874 TPSGs in 84 constituent entities of the Russian Federation<sup>1</sup>. We should note that, being a unique form of NPO in theoretical terms, not all TPSGs are registered as NPOs. Nevertheless, we believe it is possible and expedient to consider TPSG as a theoretical and methodological category that acts as a form of NPO.

Within the framework of the article, we put forward a hypothesis that the interaction of non-profit organizations in the form of territorial public self-government with municipal government subjects leads to significant economic and managerial effects, which increases the effectiveness of the municipal management system and promotes the growth of the municipal economy.

In order to verify this statement, we present an assessment of the interaction of non-profit organizations in the form of territorial public self-government with municipal government subjects in a given municipal entity.

#### **Theoretical and methodological foundations**

First of all, it is necessary to define the framework for the system of municipal government and municipal management. The classical system of municipal government includes municipal government subjects in the composition of elected and

other local self-government bodies, whose activities are aimed at developing the territory and supporting the population in key socio-economic spheres. Such a practice of government, which has been tested for several decades, has revealed a number of shortcomings related to limited resources, a significant distance between the population and authorities, the complexity of interaction through bureaucratic procedures, etc<sup>2</sup>.

Definitions found in the scientific field indicate that municipal management includes a municipal entity and a system of local self-government (Makarova, Demenko, 2016); municipal management is a socio-economic relationship formed in the process of territory development; municipal management includes municipal government bodies and self-government bodies (Demenko, Makarova, 2016).

There are several approaches to the definition of municipal management in the scientific literature (Fadeikina et al., 2019): 1) it is synonymous with municipal government, aimed at implementing the powers of authorities in terms of socio-economic development of the region and spending municipal finances (Ashmarov, 2019); 2) it is a process of solving issues of local importance; i.e. the practice of regulating socio-economic relations (Markina et al., 2018); 3) it is a set of relationships between the population and municipal government bodies, in the process of development of which (Fadeikin, Fadeikina, 2002; Ukhanova et al., 2022) a system of interaction with government institutions, business entities, NPOs, etc. is being formed; ultimately, municipal management is a type of management aimed at involving local population in government processes (Novoyants, Kirilyuk, 2018); 4) management as part of the municipal government system associated with certain areas of activity of

<sup>1</sup> Strategy for the development of territorial public self-government in the Russian Federation until 2030. Available at: [https://xn--43-emcmd.xn-plai/wpcontent/uploads/2021/11/%D0%A1%D1%82%D1%80%D0%B0%D1%82%D0%B5%D0%B3%D0%B8%D1%8F-%D1%80%D0%B0%D0%B7%D0%B2%D0%B8%D1%82%D0%B8%D1%8F-%D0%A2%D0%9E%D0%A1-%D0%B2-%D0%A0%D0%BE%D1%81%D1%81%D0%B8%D0%B9%D1%81%D0%BA%D0%BE%D0%B9-%D0%A4%D0%B5%D0%B4%D0%B5%D1%80%D0%B0%D1%86%D0%B8%D0%B8-%D0%B4%D0%BE\\_2030-9.03.2021.pdf](https://xn--43-emcmd.xn-plai/wpcontent/uploads/2021/11/%D0%A1%D1%82%D1%80%D0%B0%D1%82%D0%B5%D0%B3%D0%B8%D1%8F-%D1%80%D0%B0%D0%B7%D0%B2%D0%B8%D1%82%D0%B8%D1%8F-%D0%A2%D0%9E%D0%A1-%D0%B2-%D0%A0%D0%BE%D1%81%D1%81%D0%B8%D0%B9%D1%81%D0%BA%D0%BE%D0%B9-%D0%A4%D0%B5%D0%B4%D0%B5%D1%80%D0%B0%D1%86%D0%B8%D0%B8-%D0%B4%D0%BE_2030-9.03.2021.pdf)

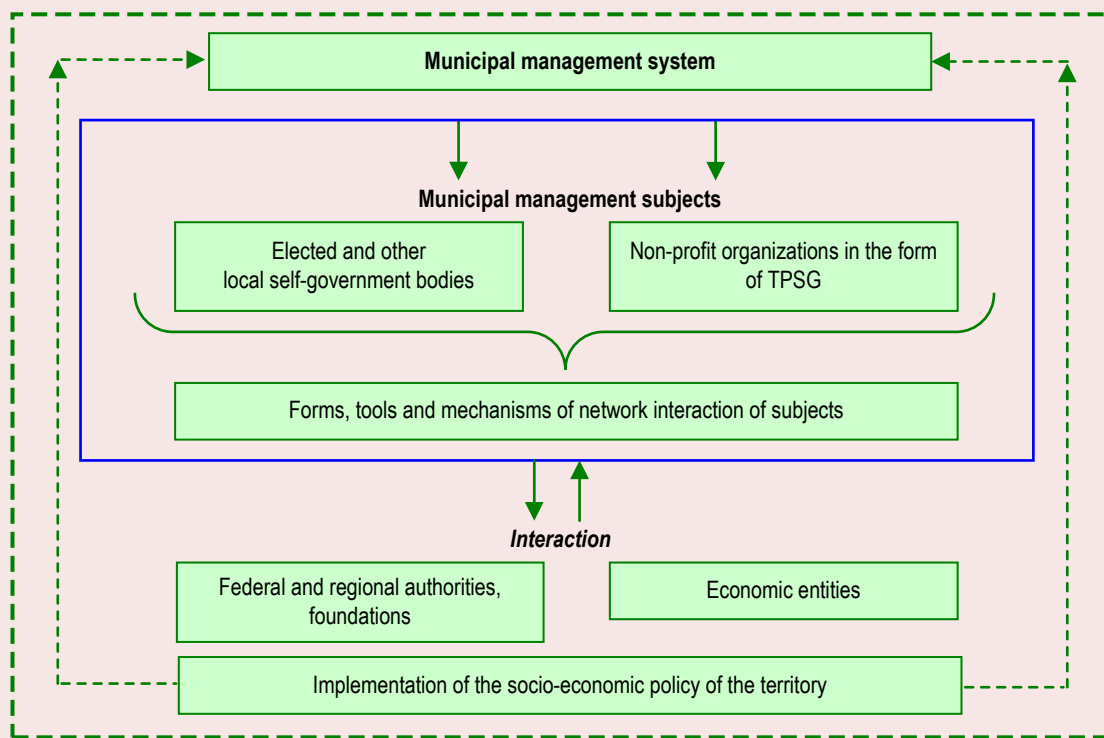
<sup>2</sup> *Economic Consequences of the New Legislation on Non-Profit Organizations* (2007). In: t grazhdanskogo analiza, In: t nats. proekta "Obshchestvennyi dogovor". Moscow: [SPROS]. 117 p.

authorities, for example, project management<sup>3</sup>, municipal finance management, etc. (Airapetov, 2017).

From our point of view, the municipal management system is characterized by the possibility of interaction between a non-profit organization and municipal government subjects, whose activities are aimed at solving socio-economic problems of the territory and meeting the needs of the local population. This approach makes it possible to increase the number of sources of additional financing, use the resources of the NPO itself, use NPO as a form of interaction, involving the population in management processes in the municipality (Malakhov, Yakobson, 2021), consider NPO as a tool for interaction with other business entities.

In turn, the interaction of NPOs in the municipal management system can be defined as a system of relationships between non-profit organizations providing services and municipal government subjects, in which organizations act as nodes in a specific field of activity (Bek et al., 2014). At the same time, all participants have similar interests related to meeting the needs of the local population and common goals aimed at improving citizens' welfare; all this determines specific forms of interaction (Gruzdeva, 2016; Oleskin, 2016). Thus, the key importance for the participants of such interaction is the exchange of experience and governing practices in order to form a single development vector for the territory (Fig. 1).

Figure 1. The place of NPOs in the form of TPSG in the municipal management system



Source: own compilation.

<sup>3</sup> *Modern Problems of Management and Development of Public and Municipal Administration* (2023). Saint Petersburg: St. Petersburg State University of Economics.

In the context of the development of the municipal management system, resources are an essential component of the interaction of non-profit organizations (Kosygina, 2021). We should note the following positive effects of such interaction: use of the experience of organizations, methodological support, possibility of training, etc. (Popkova et al., 2022).

Non-profit organizations, acting as economic entities, create conditions for building partnerships between government, business and the public. In this case the lack of resources of non-profit organizations can be eliminated within the framework of interaction with other non-profit organizations and with municipal government subjects.

The existing practice of interaction between non-profit organizations demonstrates the strengthening of their potential through the exchange of practices, work technologies, as well as common resources, which can be expressed in the emergence of a number of effects in the development of the relevant territory (Kosygina, 2022).

The question regarding the role of specific forms of NPO from the perspective of the possibility of interaction in the municipal management system is considered in different contexts (Shokhrina, Medvedeva, 2023). Thus, in recent years, scientific literature shows an increasing number of works devoted to territorial public self-government as a special form of NPO (Zaliev, Usmanova, 2018; Medvedeva et al., 2021). Most researchers agree that TPSG is a NPO with a number of characteristics, the major one of which is the possibility of interaction in the municipal management system in order to address a wide range of socio-economic issues (Badyagina, 2011; Medvedeva et al., 2021).

Thus, TPSG, as a special form of NPO, has an opportunity to participate in attracting additional funds for the development of the territory and solving significant socio-economic issues from federal (for example, the Presidential Grants Fund),

regional (the Governor's Grants Fund of the Perm Territory) sources, etc. Such support can have a whole range of effects both for TPSG (income growth, saving of own resources through the use of the material and technical base of the municipality, increasing the target audience of TPSG NPOs due to the participation of more citizens, etc.) and for the municipal management system (increasing the budgetary efficiency of municipal projects, increasing the level of popular trust, increasing the speed of implementation of measures within the framework of municipal projects, etc.).

We think it is advisable to consider in more detail the process of interaction between NPOs and the municipal management system in order to identify and concretize significant economic and managerial effects.

The interaction of non-profit organizations and municipal government subjects can be defined as administration activities in the municipal management system based on the realization of the participants' potential through the exchange of practices, work technologies and resources in order to increase the effectiveness of socio-economic development of the territory.

A whole range of researchers consider methods and techniques for evaluating the participation of non-profit organizations in public and municipal management systems.

We can point out a methodology proposed by L.A. Tretyakova, T.V. Tselyutina and Zh.N. Avilova, who associate the nature of the influence of NPOs on the regional management system with an increase in the gross regional product created. Their methodology uses the calculation of integral indicators based on official statistics data and methods of a multiplicative deterministic factor model based on the calculation of the geometric mean (Tretyakova et al., 2016). This methodological approach allowed the authors to take into account the socio-economic and political context of NPO participation in the regional government system.

V.Yu. Kulkova suggests synthesizing two key approaches, dynamic and transactional, when building methods for evaluating the activities of NPOs in public administration systems at various levels. Dynamic analysis tools help to describe the activities of NPOs metrically, build integral indicators, design synthetic indicators of NPO development in the context of organization, financing, participation, etc. in the public administration system. In turn, the transactional approach is associated with monitoring the interaction of a non-profit organization with stakeholders: public administration bodies, business entities, and population (Kulkova, 2016).

A similar synthesis can be observed in the study of E.B. Dvoryadkina and D.M. Prostova, who use the linear scaling method to calculate the private indices of NPO functioning, as well as the composite index of NPO functioning in the economic space of the region (Dvoryadkina, Prostova, 2021).

Some authors consider a system of indicators reflecting the effectiveness of NPO activities and mention general indicators characterizing the organizational activities of TPSG NPOs; social parameters related to the provision of social services to the population, as well as economic components expressed in the positive dynamics of territory's development (Maksimov, 2004; Sycheva, Shramchenko, 2020). In particular, it is proposed to evaluate economic performance of TPSG NPOs, i.e. cost indicators, for example, the cost of services provided, the amount of funds attracted to the development of the territory, etc. (Perfiliev, Kuznetsova, 2015).

Other researchers put forward a system of criteria for evaluating NPOs in the form of TPSG, taking into account the focus of NPO activities. At the same time, the collection and processing of indicators according to these criteria can be carried out by various methods, the most popular of which are expert survey and statistical analysis (Veretnova, 2019).

Many researchers have used expert analysis methods in relation to the municipal economy and municipal government. Thus, expert interviews serve as a methodological basis in many foreign studies (Crowe, 2006; Hallegatte et al., 2019) that consider the implementation of municipal resources, self-development of territories, development of social infrastructure, etc. (Sharp et al., 2016; Szajnowska-Wysocka, 2009).

From a methodological point of view, an expert survey can be characterized by a number of specific features: 1) competence of an expert; 2) ability to present data both qualitatively and quantitatively; 3) different number of experts, determined by the complexity of the subject field.

Researchers believe that the growth of the expert group does not always affect the reliability of estimates. For example, when conducting an in-person study, the optimal number of the expert group members usually varies from 5 to 7 people; and during correspondence surveys, their number should be about 20–30 people (with a maximum of 60–80 people) (Nechaev et al., 2012).

Some authors apply the partial least squares method to the analysis of expert assessments in order to test several hypotheses at once. This approach helps to evaluate the contribution of each observed variable to the final indicator<sup>4</sup>.

We should also note the study using a semi-structured questionnaire, which allowed obtaining meaningful and detailed competent answers to a number of specific questions related to the work of municipalities in the Far North of the Russian Federation (Kondratovich, 2022).

A model for assessing the level of organizational development of NPOs, designed on the basis of analysis and systematization of more than 40 relevant methods used abroad, was proposed by

<sup>4</sup> Molodchik M.A. (2021). *Knowledge Management of the Organization: Methodology and Practice: Doctor of Sciences (Economics) Dissertation*. Perm.

scientists from the Higher School of Economics<sup>5</sup>. The technique contains 12 indicators for key areas of NPO activity. In particular, the experts assessed financial stability, external communications, organizational culture, etc. More than 590 NPOs participated in the survey. We also note a survey conducted by HSE scientists on the assessment of the external conditions of NPO activities, which includes representatives of NPOs from 61 regions of eight federal districts and offers the final value of the index of the external environment of NPO development as the average value of six indicators included in the model<sup>6</sup>.

The assessment of specific economic and managerial effects from the interaction of NPOs is associated with the problem of evaluating the effectiveness of NPO as such. In particular, in relation to NPOs, the criteria of profitability, cost-effectiveness and capitalization cannot be used, since market pricing is not applicable to these services. In the case of NPOs, we can talk about several concepts of performance assessment, which are based on different criteria (Herman, 1990; Herman, Heimovics, 1994).

Thus, the effectiveness of NPOs can be interpreted as the degree of achievement of goals (Price, 1972), the ability to provide resources (Yuchtman, 1967; Ivanovsky, 2023); a multi-

element indicator (Connolly et al., 1980; Kosygina, 2020). As part of our research, we propose, based on the data of an expert survey, to build a methodology for assessing the interaction between NPOs in the form of TPSG and the municipal management system, which would allow us to identify and concretize significant economic and managerial effects of this process.

#### Data and methods

In the absence of a generally accepted approach, it seems advisable to propose a methodology for evaluating the network interaction of NPOs in the form of TPSG with municipal government subjects, based on expert assessments (*Tab. 1*).

Based on the data on the interaction of TPSG NPOs in the Perm municipal management system, questions reflecting the main characteristics of such interaction were formulated and an expert survey questionnaire was compiled. During June – August 2023, heads of TPSG NPOs participated in the survey. TPSGs were checked and verified for compliance with the term “non-profit organization” (autonomy from state and business structures, self-government and focus on providing socially significant services, changing socially and economically significant conditions for the development of the municipal economy). The composition of experts included 85 people.

Table 1. Stages of analyzing the interaction of non-profit organizations in the municipal management system

Stage 1. Selecting experts. Describing the sample	85 experts – heads of TPSG NPOs in the city of Perm, Perm Territory, were selected
Stage 2. Selecting indicators and an evaluation scale	14 indicators were selected, based on data from monitoring the network interaction of NPOs in the municipal management system of Perm. The experts' responses were evaluated on a 10-point scale
Stage 3. Initial processing of expert assessments and the formation of interaction components	Average expert estimates are calculated and analyzed. The components of network interaction are formed in accordance with the following three areas of activities of TPSG NPOs in the municipal management system: functional, organizational and process-based
Stage 4. Conducting a PCA analysis and building a SEM model of interaction	Diagnostics of the level of network interaction of TPSG NPOs concerning the key components of identifying direct and indirect effects of network interaction
Source: own elaboration.	

<sup>5</sup> Assessment of the level of organizational development of NPOs (2023). HSE: Pulse of NPOs. Available at: <https://drive.google.com/file/d/1g851gNVK9SNdg8fmEljFt1nofBEQb9KY/view>

<sup>6</sup> Assessment of the external development environment (2022). HSE: Pulse of NPOs. Available at: <https://drive.google.com/file/d/1IoTZQRKe1rgly4FWt1Ff4-CHERprm9f6/view>

The degree of agreement with each statement was assessed by respondents on a 10-point scale based on the responses of the heads of TPSG NPOs to the questions of the online questionnaire (Tab. 2).

Table 2. Assessment scale for respondents

It has no effect at all
1
2
3
4
5
6
7
8
9
10
It has a strong effect

The value of each indicator was calculated as the average value for all statements included in it. At the same time, an individual average value of the indicator was determined for each respondent. Characterizing all experts as a whole, the average value of all individual averages was recorded. If the respondent was unsure in more than 50% of the statements, the value was excluded. The final value of the indicator was calculated as the average value of all components included in the assessment methodology. As a result of processing the survey results, fourteen indicators were formed, which became the basis for SEM modeling.

**Results**

The Perm Territory is one of the leaders in terms of the level of activity of the population and the dynamics of NPOs creation. Thus, to date, the number of TPSGs in the Perm Territory has reached 647, of which 110 are located in Perm. Since 2017, TPSG NPOs have been participating in competitions to receive subsidies from the federal budget. For 2017–2022, applications totaling 24,930,025.48 rubles were received from the TPSG NPOs of the Perm Territory. Of these, only 23% received funding.

The TPSG NPOs of the city of Perm are most actively involved in the implementation of activities set out by municipal programs (about 100 events per year) and activities aimed at developing the social infrastructure of the territory (about 60–70 events per year). In addition, they take an active part in budget planning (25 initiatives). Such trends made it possible to consider TPSG from the perspective of opportunities for interaction with municipal government subjects.

The primary analysis of the average expert assessments provides a whole range of arguments justifying the possibilities and effects of interaction between TPSG NPOs in the Perm municipal management system. Thus, the data obtained made it possible to identify three key components of the interaction.

Component 1 “Network interaction of NPOs with municipal government subjects”, as part of the following indicators: support of non-profit organizations by authorities; attraction of additional funds for the development of territories; direct participation of NPOs in the management of the territory; interest of the municipality in the work of NPOs.

Component 2 “Development of the territory”, as part of the following indicators: level of inter-relation between development indicators and the indicators of municipality development; extent of NPOs influence on the quality and efficiency of the administration’s work; impact of non-profit organizations on the development of municipalities; impact of non-profit organizations on the development of municipal management; extent of development of the non-profit sector in the territory.

Component 3 “NPO activities”, as part of the following indicators: effectiveness of an NPO as a partner of the local administration; effectiveness of an NPO as an element of the municipal management system; level of network interaction of NPOs in the development of the municipality’s economy.



The factor loadings calculated by the principal component method for each component are presented in *Table 3*.

Thus, based on the analysis of the data obtained, several conclusions can be drawn:

- Component 1 is related to the development of the municipality in various fields, including infrastructure, economy and social sphere;
- Component 2 reflects the development of the territory where the interaction of the municipal management system with NPOs is developing;

– Component 3 is related to the activities of TPSG NPOs, including the attraction of additional resources.

Let us present the data on the calculation of the explained variance: Component 1 explains 29.5% of the total variation, with a cumulative percentage of 29.5%; Component 2 explains 24.4% of the total variation, with a cumulative percentage of 53.8%; Component 3 explains 14.1% of the total variation, with a cumulative percentage of 67.9% (*Tab. 4*). They show that the highlighted components explain

Table 3. Factor loadings of the components (1 “Network interaction of NPOs with municipal government subjects”, 2 “Development of the territory”, 3 “NPO activities”)

Name	Component 1	Component 2	Component 3	Uniqueness
Impact of non-profit organizations on the development of municipalities	<b>0.599</b>			0.627
Impact of non-profit organizations on the development of municipal management			<b>0.814</b>	0.321
Extent of development of the non-profit sector in the territory			<b>0.548</b>	0.603
Support of non-profit organizations by authorities			<b>0.748</b>	0.412
Attraction of additional funds for the development of territories		<b>0.854</b>		0.257
Direct participation of NPOs in the management of the territory	0.317	<b>0.839</b>		0.188
Interest of the municipality in the work of NPOs	0.316	<b>0.772</b>		0.259
Level of activity of the population in municipal management	0.431	<b>0.781</b>		0.196
Extent of NPOs influence on the quality and efficiency of the administration's work	<b>0.659</b>			0.493
Effectiveness of an NPO as a partner of the local administration	<b>0.816</b>			0.239
Effectiveness of an NPO as an element of the municipal management system	<b>0.797</b>			0.206
Level of interrelation between development indicators and the indicators of municipality development	<b>0.828</b>	0.376		0.158
Level of influence of NPO on the development of the municipality's economy	<b>0.765</b>	0.400		0.216

Principal component method, rotation method: Varimax, the number of components is determined based on eigenvalues > 1.  
Source: calculations performed in Jamovi (Version 2.3) (The jamovi project (2022). jamovi. (Version 2.3) [Computer Software]. Available at: <https://www.jamovi.org>)

Table 4. Explained variance for each component

Component	Load	Differences, %	Aggregate %
1	3.83	29.50	29.50
2	3.17	24.40	53.80
3	1.83	14.10	<b>67.90</b>

Source: calculations performed in Jamovi (Version 2.3) (The jamovi project (2022). jamovi. (Version 2.3) [Computer Software]. Available at: <https://www.jamovi.org>)

most of the variation in the data. However, since the cumulative percentage does not reach 100%, there is an additional variation that is not explained by these components.

Thus, in order to detail the components explaining this variation, we will conduct structural equation modeling (SEM)<sup>7</sup> (Tab. 5).

Let us consider the external loads for estimating latent variables and the relative contribution of each indicator to creating an estimate of its latent variable. Thus, the observed variable “Support of non-profit organizations by authorities” has a load of 0.190 for the hidden variable “Network interaction of NPOs with municipal government

Table 5. Results of structural equation modeling for the components (1 “Network interaction of NPOs with municipal government subjects”, 2 “Development of the territory”, 3 “NPO activities”)

External loads	External load value	Average value of sub-samples	Standard deviation	Average value of sub-samples / standard deviation	Statistical significance
Support of non-profit organizations by authorities < Network interaction of NPOs with municipal government subjects	0.190	0.185	0.044	4.292	0.000
Attraction of additional funds for the development of territories <- Network interaction of NPOs with municipal government subjects	0.301	0.305	0.032	9.522	0.000
Direct participation of NPOs in the management of the territory < Network interaction of NPOs with municipal government subjects	0.318	0.317	0.026	12.197	0.000
Interest of the municipality in the work of NPOs <- Network interaction of NPOs with municipal government subjects	0.332	0.333	0.032	10.340	0.000
Extent of NPOs influence on the quality and efficiency of the administration’s work < Development of the territory	0.242	0.242	0.036	6.749	0.000
Impact of non-profit organizations on the development of municipalities < Development of the territory	0.273	0.273	0.024	11.289	0.000
Impact of non-profit organizations on the development of municipal management < Development of the territory	0.314	0.314	0.027	11.522	0.000
Extent of development of the non-profit sector in the territory < Development of the territory	0.339	0.340	0.029	11.639	0.000
Effectiveness of an NPO as a partner of the local administration < NPO activities	0.505	0.493	0.113	4.451	0.000
Effectiveness of an NPO as an element of the municipal management system < NPO activities	0.417	0.413	0.116	3.584	0.000
Level of network interaction of NPOs in the development of the municipality’s economy < NPO activities	0.429	0.425	0.117	3.657	0.000

Source: calculations performed in Jamovi (Version 2.3) (The jamovi project (2022). jamovi. (Version 2.3) [Computer Software]. Available at: <https://www.jamovi.org>)

<sup>7</sup> Structural equation modeling (SEM) was conducted in SmartPLS 4: Ringle C.M., Wende S., Becker J.-M. (2022). *SmartPLS 4*. Oststeinbek: SmartPLS GmbH. Available at: <http://www.smartpls.com>

subjects”, t-statistic is 4.292, and p-value is 0.000; therefore, this load is statistically significant. The observed variable “Extent of development of the non-profit sector in the territory” has a load of 0.339 in relation to the hidden variable “Development of the territory”, t-statistic is 10.340, and p-value is 0.000, which indicates a very strong and significant relationship.

In general, Table 5 shows that all relationships are statistically significant at p-values of 0.000, and the load coefficients range from moderate to strong (from 0.190 to 0.505). The consistency of statistical significance and the strength of the load coefficients for various observed variables suggest that the model has recorded reliable relationships between the observed and latent variables.

Next, let us proceed to the analysis in order to test theoretical models by measuring the

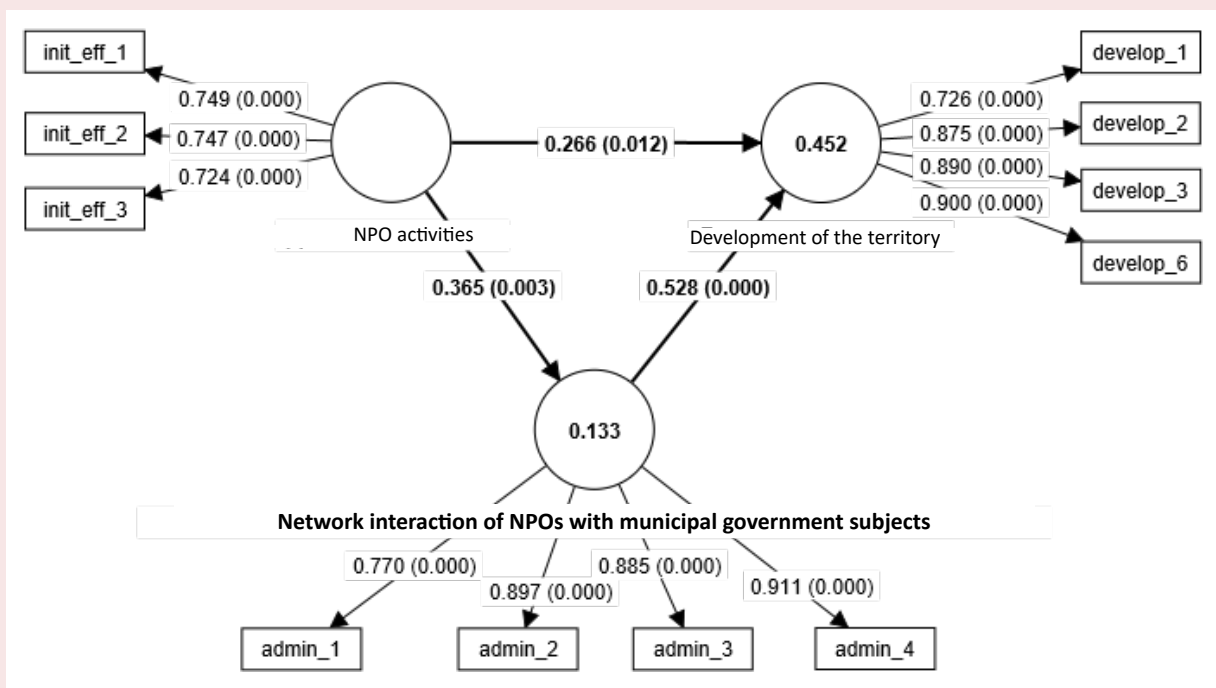
relationships between several variables, based on the following hypothesis: there exist significant direct and indirect effects from the impact of hidden variables on the observed components.

The modeling in the direction of “Territory development” > “NPO activities” > “Network interaction of NPOs with municipal government subjects”, taking into account multicollinearity, looks like this (Fig. 2).

The analysis of the obtained model allows us to talk about direct and indirect effects (Tab. 6).

According to the data, the activities of NPOs have a direct impact on the interaction of NPOs with municipal government subjects in the amount of 0.365 with a standard deviation of 0.121; t-statistic is 3.012, p-value is 0.003, which indicates a statistically significant effect. The network

Figure 2. Modeling using structural equations for the components “Territory development” > “NPO activities” > “Network interaction of NPOs with municipal government subjects”



Source: Downloaded from Jamovi (Version 2.3) (The jamovi project (2022). jamovi. (Version 2.3). Available at: <https://www.jamovi.org>)

Table 6. Direct effects identified based on the analysis of the obtained SEM model

Direct effect	Path coefficients	Average value of sub-samples	Standard deviation	t-statistic	p-value
NPO activities -> Development of the territory	0.266	0.277	0.107	2.501	0.012
NPO activities -> Network interaction of NPOs with municipal government subjects	0.365	0.386	0.121	3.012	0.003
Network interaction of NPOs with municipal government subjects -> Development of the territory	0.528	0.522	0.106	4.965	0.000

Table 7. Indirect effects identified based on the analysis of the obtained SEM model

Inirect effect	Path coefficients	Average value of sub-samples	Standard deviation	t-statistic	p-value
NPO activities > Network interaction of NPOs with municipal government subjects > Development of the territory	0.192	0.201	0.074	2.610	0.009

Table 8. Full effect revealed on the basis of the analysis of the obtained SEM model

Full effect	Path coefficients	Average value of sub-samples	Standard deviation	t-statistic	p-value
NPO activities -> Development of the territory	0.459	0.477	0.105	4.357	0.000
NPO activities -> Network interaction of NPOs with municipal government subjects	0.365	0.386	0.121	3.012	0.003
Network interaction of NPOs with municipal government subjects -> Development of the territory	0.528	0.522	0.106	4.965	0.000

interaction of NPOs with municipal government subjects has a direct impact on the development of the territory in the amount of 0.528 with a standard deviation of 0.106; t-statistic is 4.965, p-value is 0.000, which indicates a very statistically significant effect.

Thus, all these relationships are statistically significant, and “Network interaction of NPOs with municipal government subjects -> Development of the territory” demonstrates the strongest effect and the highest significance (Tab. 7).

The indirect effect suggests that NPOs influence the development of the territory indirectly through network interaction with municipal government subjects. The specific indirect effect is the product of the effects that are involved in the path:  $0.192 = 0.365 \cdot 0.528$  (Tab. 8).

The variable “NPO activities” has a full effect of 0.459 on the “Development of the territory” in our case, and this effect is higher than the direct effect (0.266) and the indirect effect through the network interaction of NPOs with municipal government subjects (0.192), confirming that it represents the overall effect (the sum of direct and indirect effects  $(0.459) = 0.192 + 0.266$ )<sup>8</sup>. A standard deviation of 0.105 indicates relatively small differences in estimates of the magnitude of the effect across the samples, which leads to a t-statistic of 4.357; p-value = 0.000 ( $p < 0.001$ ), providing very convincing statistical evidence of the effect<sup>9</sup>.

<sup>8</sup> Due to the approximation of the values, an error of 0.001 appeared in the program (sum = 0.458).

<sup>9</sup> Both the saturated and estimated models have an SRMR of 0.087, which is slightly above the preferred threshold, but still indicates an acceptable match.

Thus, first, NPO performance indicators in the aggregate of indicators of the use of additional resources and the population are steadily and significantly interrelated with indicators of the territory's development. Second, the component reflecting interactions with the municipal management system is steadily and significantly interconnected with territorial development indicators. These effects are direct and have high statistical significance. Third, the component "NPO activities" is indirectly interconnected with indicators reflecting the development of the territory. This relationship is due to the processes of interaction with the municipal management system. Therefore, it is definitely possible to talk about the existence of indirect effects from the activities of NPOs in the territory, which arise in the process of interaction with the municipal management system.

The constructed model reflects the degree of influence of the "Development of the territory" component in the aggregate of the observed variables (1–6) on the components "NPO activities" (three variables), "Network interaction of NPOs with municipal government subjects" (four variables). The analysis of the obtained parameters of the model's reliability indicates that the selected data are correct and confirms the existence of a relationship between the designated components. The expert assessments obtained have the necessary level of consistency and represent a high-quality sample of data.

Based on the results of the analysis, the hypothesis was confirmed that the interaction of NPOs in the form of TPSG with municipal government subjects is expressed in the form of a network relationship reflecting the socio-economic development of the territory and the activities of TPSG NPOs with direct and indirect effects.

### **Conclusion**

The analysis made it possible to evaluate the process of interaction of TPSG NPOs in the municipal management system of the city of Perm. This

process can be characterized as a network and reflects the transformation of municipal management functions. At the same time, the analysis revealed some difficulties in the evaluation procedures related to the lack of regularly observed data in a number of areas, the need to analyze individual cases, the difficulty of identifying and interpreting managerial effects in the development of the municipal management system due specifically to the participation of NPOs rather than other processes and phenomena.

However, these circumstances acted as justifying factors in choosing a set of methods for conducting an assessment in the form of a synthesis of methods for monitoring individual cases of TPSG NPOs, expert assessments and factor analysis, including a set of metrics that collectively reflect the nature of the ongoing interaction process.

The novelty of the research consists in the formation of own assessment tools, which made it possible to identify and substantiate the economic and managerial effects of interaction between NPOs and municipal government subjects, reflecting the quantitative metrics of NPO activities in addressing local issues, in organizing and implementing local events, in attracting additional funds to solve socio-economic problems of the territory.

In the context of the possibilities of practical application, the obtained research results may be of interest to various groups of people: representatives of actively developing non-profit organizations; a municipal education management system focused on the search and active use of additional resources.

Taking into account the fact that the majority of NPOs in the form of TPSG are characterized by isolation in matters of organization, poor participation in network interaction projects and insignificant use of municipal resources, there is clearly a high potential for increasing forms and formats of interaction with municipal government subjects through the participation of TPSG NPOs

in all municipal programs for the socio-economic development of the territory; TPSG participation in the development of individual municipal projects; conducting joint events involving the maximum number of citizens and individual population groups; improving the coherence of the organizational activities of subjects (NPOs, municipal government subjects); promoting the activity related to attracting additional funds for the development of the territory.

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