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PUBLIC PARTICIPATION PROJECTS MANAGEMENT IN THE CONTEXT OF PORTFOLIO MANAGEMENT

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ABSTRACT

The relevance of the research topic is due to the need for improvement and further development of scientific and methodological support for portfolio management processes in the context of the introduction of portfolio-oriented management in the field of local (territorial) self-government project management, including public participation (PP) projects.

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Introduction.

Problem statement.

In various world countries, high rates of the total number growth of submitted and accepted public participation projects (PP projects) and the budgets allocated for them are currently being observed. In particular, in the city of Kyiv (Ukraine), the number of PP projects accepted for

implementation increased from 62 in 2017 to 351 in 2021 (393 projects were planned for implementation in 2022), and the corresponding budget increased from 50 million of UAH in 2017, up to 170 million of UAH in 2021 (for 2022, the allocation of 200 million of UAH was planned). This requires increasing the effectiveness and efficiency of the project management – both in general and by individual components, namely: health, education, transport, etc.

In modern conditions, increasing the effectiveness and efficiency of project management is increasingly associated with the application of methodological approaches of portfolio management. At the same time, as it is emphasized in scientific works and other sources of information, there is no single, universally recognized and approved through relevant standards, typology of projects portfolios that are implemented in business and non-business spheres. Thus, there are examples of structuring project portfolios according to: target orientation; degree of connection with the strategy; type of asset increasing; type of development integration; nature of innovations; type of built-in options; nature of mutual dependence of projects; phases of the organization's life cycle; type of activity; and impact on the organization's business structuring. It is also proposed to separate, first of all, in organizational structures and portfolios regarding: development projects; investment projects; internal infrastructure projects; external infrastructure projects; and project programs.

With a significant number of implemented projects in the organization's portfolio, recommendations are given to divide them into the following three main groups: external investment projects that provide profit; external and internal projects that are important for the development of the organization, at the same time, are not directly related to obtaining "quick" profit; and others. Such groups may represent sub-portfolios or divisions within an organizational portfolio.

It is also possible to use industrial, geographical or other criteria for the portfolio formation – as sub-portfolios or subdivisions of the respective portfolios.

Gradually, general recognition is gaining the opinion that combining projects in a portfolio allows obtaining a new quality of their management, improving the result of their implementation, namely portfolio or portfolio-oriented (both terms are used interchangeably in this paper) management is gradually turning into an effective management mechanism not only the implementation of strategic goals, but also, under certain conditions, the formation of them [1, 2]. The increasing importance of portfolio management in the theory and practice of project management is indirectly indicated by the fact that, since 2006, the largest professional organization in the field of project management - Project Management Institute (PMI) separated from its basic management standard by projects - A Guide to the Project Management Body of Knowledge, PMBOK® Guide, develops and brings the portfolio management standard to the attention of project management specialists [3–6]. However, until now, portfolios have been considered in scientific works and standards on portfolio management mainly in the context of the implementation of individual strategies, mostly, business organizations or organizational networks.

Thus, an urgent scientific task is the improvement and further development of the scientific and methodological support of portfolio management processes in the context of the introduction of portfolio-oriented management in the field of management of local (territorial) self-government projects, including PP projects (the term "public projects" is used as an equivalent).

The latest research analysis.

By this time, PMI has proposed four versions of the portfolio management standard, which were published in 2006 [3], 2008 [4], 2013 [5] and 2017 [6]. As it is noted in the first version of this standard, project management is one of those terms that have many meanings. For a long time it was associated exclusively with projects. However, today it is becoming clear that project management also covers portfolio and program management, focusing on the thesis of "doing the right job", in contrast to the traditional one for project and program management, "doing the job correctly" [3].

The concepts of "portfolio" and "portfolio management" appear in the portfolio management standards. Comparing the definition of the portfolio in the versions of the PMI portfolio management standard, it can be concluded that in the first three versions [3–5] the portfolio is considered as including projects, programs, and other works that are not included in the aforementioned components – projects and programs. At the same time, starting from the end of 2000, in the second version of the portfolio management standard [4] and a number of other PMI standards, the term "highest level portfolio" begins to be used, which, in addition to projects and programs, by definition, may contain "relatively lower

level portfolios". At the same period of time, the professional community notes that in practice there is a trend when more or less stable groups of projects appear sporadically, and sometimes systematically, in any large portfolio. As long as these groups of projects exist only for the convenience of management, we can talk about "subdivisions" of a single portfolio. However, when the allocation of resources separately for a group and the projects rating within such a group begins, then it is already a matter of separating a portfolio of a relatively lower level within a portfolio of a relatively higher level. All techniques and tools of traditional portfolio management can be applied to these new "formations". These practices were taken into account when defining a portfolio in the fourth version of the PMI portfolio management standard through the introduction of sub-portfolios to portfolio components (sometimes the term "sub-portfolios" is used in English as "subsidiary portfolios") [6]. Developing the concept of "portfolio" in the fourth version of the portfolio management standard, PMI links the separation and existence of a portfolio to the implementation of certain strategies and the achievement of certain goals of organizations and business units. At the same time, the portfolio assumes the existence of both current components and those that will be included in it in the future. Obviously, the presence of many strategies and goals leads to the fact that an organization can have, in general, more than one portfolio. New project and program initiatives are included in existing or new portfolios. In addition, relatively larger portfolios may include sub-portfolios. At the same time, for the most part, hierarchical structuring is observed. Portfolios can be external or internal to the organization, and also exist at different levels of the organization - the organization as a whole, a division, a business unit or a function [6].

In this work, the terms "portfolio" and "portfolio management" are used in the meaning proposed in the fourth edition of the standard of portfolio management, unless otherwise indicated separately. That is, a portfolio is a set of projects, programs, sub-portfolios, as well as operations that are managed as a group to achieve strategic goals. Portfolio management is the centralized management of one or more portfolios in order to achieve strategic goals. This is the application of portfolio management principles to align the portfolio and its components with the organizational strategy. Portfolio management can also be considered as a dynamic activity by which an organization invests resources in achieving its strategic goals through identification, categorization, monitoring, evaluation, integration, selection, prioritization, optimization, balancing, authorization (approval), transition (suspension), control and completion of portfolio components [6].

In works [7, 8] the concept of portfolios formation of PP projects is proposed. This concept is based on the study of scientific and methodical approaches considered in relation to: structuring; definition of criteria for assessment, selection and prioritization; optimization of PP projects aggregates – such as those presented in portfolios. At the same time, in the above-mentioned works [7, 8], the authors consider the problem of structuring the portfolio of PP projects, first of all, in the context of the implementation of such life cycle phases of the portfolio – as the stages of the portfolio management process – as initiation and planning, leaving out the stage of actual implementation, as well as optimization at the implementation stage. We should note separately that optimization, or in the first three versions of the PMI portfolio management standard – balancing, as it is interpreted in the specified versions [3–5], takes place not only at the actual optimization stage, but also, to a large extent, at other stages of the portfolio management process, including at the implementation stage, which is emphasized in the fourth version of the PMI portfolio management standard [6].

The purpose of this study is to improve the scientific and methodological approaches to the structuring of project portfolios under the conditions of distinguishing the phases of the portfolio's life cycle – initiation, planning, execution and optimization in the context of managing aggregates of PP projects considered as portfolios.

Object of study.

Processes of structuring aggregates of PP projects.

Subject of study.

Scientific and methodical approaches to structuring project portfolios.

The research paper main body.

In general, the process of evaluation and selection of PP projects for implementation, on the example of Kyiv, currently looks as follows. Requests for PP projects must undergo preliminary selection in the relevant structures of the executive branch of the territorial community. Then, those of the requests that successfully passed the preliminary selection are offered for consideration by the residents of the territorial community. They have a certain, predetermined number of votes per person. The definition of the term "resident of a territorial community" may change over time.

After that, based on the number of votes in support – as a separate indicator, or an indicator presented in the form of a certain functional dependence on the number of votes in support, or in a set combination with other indicators – projects, in a predetermined manner, are selected and transferred to implementation.

The analysis of existing practices in the process of forming a set of PP projects, which is considered in this work as a portfolio, gives reasons to single out at least two fundamentally different approaches to the structuring of this portfolio. According to the first of them, separate preliminary allocation (fixing) of budgets for any components of PP projects portfolio is not envisaged. Projects that are different in terms of parameters that characterize these projects, for example, thematic direction, request for the amount of funding, etc., receive their rating within the general list, according to which they can then be prioritized, including, for example, within the thematic list, and the budget is shared for them. Accordingly, following the interpretation of the portfolio or sub-portfolio given in the review of works presented above, we can deal only with portfolio subdivisions, PP projects, which if separated, in most cases it happens for the convenience of management. As an example, we can cite the public projects of the city of Kyiv, the conditions for the selection of thematic areas according to which, starting from 2017, as can be seen from the table 1, have underwent constant changes. At the same time, for each project, the city working group on public budget issues, if the localization of the project is city-wide, or the district working group on public budget issues, in the case of regional localization of the project, provides for the determination of the unit responsible for the examination of the project by the subject of project implementation. There are also other aspects of the PP projects management in the city of Kyiv, the conditions of which depend on the thematic direction of the public project [9, 10]. At the same time, the allocation of separate budgets by thematic directions is not foreseen for now.

According to the second one, from the above-mentioned approaches to structuring the portfolio of PP projects, in contrast to the first, separate budgets are provided for projects that differ significantly in terms of certain values, defined and selected for categorization parameters. If we turn again to the public projects of the city of Kyiv, then in 2022, as in some previous years, in particular, in 2018 and 2021, it was planned to separate the categories of small and large projects. Small public projects, which were to be accepted for implementation in Kyiv in 2022, included projects with a budget of 100.0 to 999.9 thousand of UAH, and large ones from 1000.0 to 3000.0 thousand of UAH. At the same time, the budget of the large ones was 60%, and the small ones – 40% of the total budget allocated to the PP projects. Similar conditions for the division into small and large projects took place in 2021 as well.

Thus, for now, according to the portfolio-oriented management "language", we can interpret the set of Kyiv city public projects for 2018, 2021 and 2022 as a portfolio, which includes two categories: the category of small and the category of large projects. These categories, according to the sub-portfolio definition, can be interpreted as sub-portfolios. The division of projects by thematic direction, in turn, can be considered as the separation of portfolio divisions (sub-portfolio) for ease of management.

Solving the task of defining the list and content of the thematic directions that are singled out in relation to the projects of PP is of independent importance. This task has different aspects. Let us focus on one of them – the conditions for increasing the efficiency of selected PP projects implementation. Such an increase in efficiency can take place, first of all, due to the possibility of centralizing purchases of the same type of resources from the outside for a set of PP projects and/or implementation of PP projects together with other projects of the territorial community on a common pool of resources that belong to the community, such as people, equipment, etc. In both of these cases, a positive effect from synergy is expected.

Table 1. Conditions for the selection of thematic directions for the State Government projects that were implemented in the city of Kyiv in 2017-2021 and were planned for implementation in 2022

Thematic direction	Year					
	2017	2018	2019	2020	2021	2022 (plan)
1	2	3	4	5	6	7
Information technologies (IT)	+	+	+	+	+	+
Security	+	+	+	+	-	-
Education	+	+	+	+	-	-
Civil society	-	+	+	+	-	-
Education, Civil society	-	-	-	-	+	+
Roads, Transport	+	+	+	+	+	+
Ecology	+	+	+	+	+	+
Utilities, Energy saving	+	+	+	+	-	-
Housing (Utilities, Energy efficiency)	-	-	-	-	+	+
Culture, Tourism	+	+	+	+	+	+
Health care	+	+	+	+	-	-
Health	-	-	-	-	+	+
Public space	-	-	+	+	-	-
Social protection	+	+	+	+		
Social protection, Inclusion	-	-	-	-	+	+
Sport	+	+	+	+		
Youth, Sport	-	-	-	-	+	+
Other	-	+	+	+	-	-
Interthematic	-	-	-	-	+	+

The combination of PP projects in the portfolio, in turn, acts as a mechanism for achieving such synergy. At the same time, these can be both portfolios of PP, within the framework of which they were chosen for implementation, and new portfolios, which may include PP projects, primarily corresponding to certain thematic directions. As an example that illustrates the first case, it is possible to mention the projects of the PP, which were implemented in 2020 in the city of Kyiv under the thematic direction of "Education". We can see there a significant number of requests for funding in the same volume of the same type of PP projects for different schools for the sound and multimedia equipment installation. For a hypothetical example that can illustrate the second case, PP projects under the thematic direction "Roads, transport" can act. The implementation of many PP projects of this thematic direction requires the involvement of human resources, equipment, etc., which are involved in the transport and road complex of the city, in particular, in the implementation of projects that are implemented within the framework of the relevant budget expenditures of the territorial community by functions or elements – "Transport" or "Capital construction". At the same time, the formation of calendar and resource plans for projects should be provided, taking into account the limitations of the relevant resources. That is, in the second case, PP projects of the thematic direction "Roads, transport" – in whole or in part – can be considered as part of at least two portfolios – a portfolio of PP projects in the conditions of their selection for implementation and a project portfolio that combines these projects with ones, which are implemented within the budget of the territorial community at the relevant expenses of the latter. At the same time, in this, second case, they can remain in the portfolio of PP projects, for which the function of monitoring and control over the implementation of the specified projects is maintained, in whole or in part.

Returning to the task of defining the list and content of the thematic directions that are singled out for PP projects, and based on the above mentioned, we consider it expedient to single out the thematic directions for the PP projects in agreement with the list and content of the thematic directions for expenditures of territorial communities budgets. In particular, for many years, the expenses of the Kyiv budget have been separated by such functions as: education; transport and road management; health care; the social protection; utilities; culture and art; physical education and sports; construction. There are also other expenses, the content of which, in a certain part, varies from year to year.

The expediency of harmonizing the separation of thematic directions with the list and content of thematic directions, according to which expenditures of the budgets of territorial communities are formed, is also important from another point of view. In the conditions of analyzing the conditions for the introduction of individual budgets by thematic directions, different options for the distribution of the public participation budget can be used, hypothetically. For example, such distribution can be carried out in proportion to the number of submitted requests or the number of received votes in support already based on the results of voting by thematic directions. At the same time, considering the portfolios, including PP projects, territorial communities as a means of implementation, and, under certain conditions, the formation of the strategy of the territorial community, the level of weighting coefficients in the distribution of the public budget can be set as one that stimulates development, first of all, certain thematic directions. At the same time, it can be either "strengthening" the recognition of strategic areas of development that are important for the territorial community, or "strengthening" strategic areas that "do not collect" funds from the "normal" budget of the territorial community, or searching for new promising areas of strategic development of the territorial community, when PP projects, to a certain extent, have the character of experiments.

A separate problem that needs to be solved in the context of thematic directions selection by PP projects is the definition of the quality in which the selected thematic directions will act – as sub-portfolios, which involves the allocation of separate budgets for them, or as subdivisions of the PP portfolio. As already mentioned, this paper traces the existence of at least two different approaches to the structuring PP portfolios – without prior fixing of budgets for any components of the PP portfolio and with budget fixation for certain components of the PP portfolio.

As criteria for the selection of projects for implementation under the conditions of using only one of the above-mentioned approaches or both approaches in a certain combination, that is, the selection of both sub-portfolios and subdivisions, two criteria are observed to be used, in particular, in the city of Kyiv in different years as alternatives. This is "the number of votes that the project received for support" (hereinafter – the criterion for the number of supporting votes) and "the ratio of votes number that the project received for support to the request for the amount of funding for this project" (hereinafter – the criterion for the ratio of votes number in support of the funding request). Carrying out a comparative analysis of the two outlined approaches to structuring the portfolio of PP projects, we can point out the advantage of the first approach, mainly that it "equalizes" in the community's vision all projects in their desire to be implemented with funds from the PP budget (the term "public budget" is used as an equivalent). This, to the greatest extent, corresponds to the essence of "movement" of PP projects development. At the same time, such at first glance obvious, "equality" may actually turn out to be imaginary. This is due, first of all, to the fact that projects that meet certain parameters, sometimes a priori, have a relatively higher probability of receiving more votes in support. For example, this is observed in relation to projects that are significantly larger than others from the corresponding list, which is reflected in the request for financing volume. When an alternative criterion is used for the projects selection for implementation – the ratio of the votes in support number to the request for the amount of funding, then here, if we continue the previous example, the "lose" is mostly significantly larger projects. We note that choosing this criterion, which allows us to take into account the effectiveness of spending, at the same time, we also have, to a certain extent, a violation of "equality", as the number of votes received in support of PP projects in the eyes of citizens who participate in voting.

The above, in particular, is confirmed in the statistical data on the values of request amount for the volume of financing for the PP projects, which were admitted to the vote and which were accepted for implementation according to thematic directions in the city of Kyiv, starting from 2017. In the tables 2–4 some results of processing the specified statistical data are shown.

Table 2. To the analysis of changes in the average values of the amount of requests for funding between PP projects accepted for implementation and PP projects admitted to voting, by thematic directions in the city of Kyiv in 2017 (the criterion of acceptance for implementation is the number of votes on support)

Thematic direction	The average amount value of request for PP projects funding admitted to the vote, thousands of UAH	The average amount value of request for PP projects financing accepted for implementation, thousands of UAH	Change, %
1	2	3	4
IT (information technologies)	557,7	0	- 100,0
Security	638,4	990,4	55,1
Education	777,5	834,8	7,4
Roads, Transport	765,1	997,5	30,4
Ecology	625,3	602,6	- 3,4
Utilities, Energy saving	675,8	671,4	- 0,6
Culture, Tourism	651,6	639,6	1,8
Health care	570,5	833,2	46,0
Social protection	680,3	646,6	- 5,0
Sport	687,5	900,0	30,9

As it can be seen from the table 2, in 2017, when the number of votes in support was the criterion for the acceptance of the PP projects for implementation, the average value of funding request for PP the projects accepted for implementation increased in almost all thematic areas compared to the value of a similar indicator, determined according to the PP projects admitted to the vote. PP projects in the field of IT were exceptions. There we have no projects accepted for implementation at all, as well as in the fields of social protection, ecology and utilities and energy saving, where we have an insignificant decrease – respectively, by 5.0%, 3.4% and 0.6% – in the average value of the request for the amount of funding for the PP projects accepted for implementation, compared to the request for the amount of funding for the PP projects admitted to the vote. These thematic directions, next to such ones as culture and tourism and even education can be considered as those where changes in the average amount value of the request for the volume of financing did occur – in the second case, in the direction of increase, respectively, by 1.8% and 7.4%, however, were insignificant. At the same time, according to such thematic areas as security, roads and transport, health care, and sport changes in the request for the amount of funding for the PP projects accepted for implementation, compared to the PP projects admitted to the vote, can be considered significant – respectively, 55.1%, 30.4%, 46.0% and 30.9%.

At the same time, if we turn to the table 3, which provides calculations for 2020, when the number ratio of votes in support to the request for the amount of funding was used as a criterion for PP projects acceptance, then we have the opposite situation. Namely, the average amount value of the request for financing volume for the PP projects accepted for implementation has significantly decreased in almost all thematic directions, compared to the value of a similar indicator determined for the PP projects admitted to the vote. The only exception was the thematic direction "Security", according to which the above-mentioned change is a positive value and amounts to 24.5%.

Table 3 – To the analysis of changes in the average amount values of requests for funding between the PP projects accepted for implementation and the PP projects admitted to voting, by thematic directions in the city of Kyiv in 2020 (the criterion for acceptance to implementation is the number ratio of votes in support of the funding request)

Thematic direction	The average value of request amount for the amount of PP projects funding admitted to the vote, thousands of UAH	The average value of the request amount for the amount of PP projects financing accepted for implementation, thousands of UAH	Change, %
1	2	3	4
IT (information technologies)	851,2	407,1	- 52,2
Security	265,4	330,4	24,5
Education	466,9	291,3	- 37,6
Civil society	201,6	178,4	- 11,5
Roads, Transport	634,7	211,5	- 66,7
Ecology	482,7	312,4	- 35,3
Utilities, Energy saving	303,4	157,0	- 48,2
Culture, Tourism	715,5	200,8	- 71,9
Health care	856,0	458,0	- 46,5
Public space	454,2	289,0	- 37,7
Social protection	400,0	261,2	- 34,7
Sport	660,7	355,3	- 46,2
Other	569,3	290,6	- 49,0

The year 2021 is of particular interest, where, as in 2020, the number ratio of votes in support to the request for the amount of funding was used as a criterion for the acceptance of the PP projects. However, this year we have the separation of the "small" and "large" categories, with a preliminary establishment of a separate budget for each category. As it can be seen from the table 4, according to the category of small PP projects, the average value of the request for PP projects funding accepted for implementation significantly decreased in all thematic areas compared to the value of a similar indicator determined for the PP projects admitted to the vote. At the same time, as it follows from the same table 4, we have almost the same situation for the "large" category. The exception was only one thematic direction – culture and tourism.

It should be noted that in most of the considered cases, the coefficient of variation of request amount for the volume of financing for the PP projects accepted for implementation is less than or equal to the coefficient of variation of request amount for the financing amount of the PP projects admitted to the vote. The values of these coefficients are not given due to existing limitations regarding the scope of this publication.

As part of works [7, 8], a study was conducted, the main question of which was formulated as follows: "Do requests for the volume of public projects financing submitted in 2019 and those awaiting acceptance for implementation in 2020 differ significantly in the city of Kyiv, according to specific thematic directions?". The answer to this question in the study was connected with the testing of null (working) hypotheses regarding the significance of the differences between the PP projects admitted to the vote on the request for the amount of funding. Accordingly, the database of projects that were the object of voting in 2019 was considered.

Table 4. To the analysis of changes in the average values of the request amount for the volume of financing between the PP projects accepted for implementation and the PP projects admitted to the vote, by the categories of "small" and "large" by thematic directions in the city of Kyiv in 2021 (the criterion of acceptance for implementation is the number ratio of votes in support to the request for the amount of funding)

Thematic direction	Category of PP projects by the size of the request for funding					
	"Small"			"Large"		
	average value of the request amount for the amount of funding for the PP projects admitted to the vote, thousands of UAH	average value of the request amount for the amount of financing for the PP projects accepted for implementation, thousands of UAH	change, %	average value of the request amount for the amount of funding for the PP projects admitted to the vote, thousands of UAH	average value of the request amount for the amount of financing for the PP projects accepted for implementation, thousands of UAH	change, %
1	2	3	4	5	6	7
IT (information technology)	454,0	313,3	- 31,0	1363,2	1121,1	- 17,7
Education, Civil society	297,5	258,2	- 13,2	1376,1	1344,5	- 2,3
Roads, Transport	361,3	276,3	- 23,5	2000,1	0	- 100,0
Ecology	275,4	140,4	- 49,0	1686,2	1398,8	- 17,0
Housing (Utilities, Energy efficiency)	262,1	180,2	- 31,2	1411,5	1067,7	- 24,3
Culture, Tourism	267,0	188,3	- 29,5	1586,9	1846,0	16,3
Health	360,7	267,6	- 25,8	1743,9	1329,8	- 23,7
Social protection, Inclusion	278,7	248,7	- 10,8	1288,4	0	- 100,0
Youth, Sport	345,3	275,1	- 20,3	1652,8	1473,3	- 10,9
Interthematic	314,2	159,8	- 49,1	1815,1	1005,1	- 44,6

It should be noted separately that during this period, PP projects were not divided into "small" and "large" categories. This division was conditionally made in works [7, 8]. The "threshold", which divided the categories of small and large projects, was accepted under the conditions valid in 2018 and amounted to 399.9 thousand of UAH. At the same time, the lower limit for small projects, in accordance with the conditions of 2018, was not actually established, while the upper limit for the category of large projects corresponded to the existing one for 2021 and 2022 –3000.0 thousand of UAH. Somewhat different, compared to previous and subsequent periods, was the separation of thematic directions, table 1.

The mentioned study was supposed to show whether there is a significant difference in the request for the financing volume of different thematic directions projects in the composition of one category, which, as can be assumed, has a source of industry specifics. This, in turn, may result in "inequality" when ranking them together according to one criterion – either the criterion of the number of votes in support, or the criterion of the number ratio of votes in support to the request for the amount of funding, tables 2–4. Projects of branches (thematic directions) with a smaller request for the amount of funding, including, according to the corresponding category – small or large, if such categories are introduced, will be in the rating, with a slight difference in the number of votes for support, and not

necessarily in the direction of the increase in the number of these votes, higher relative to others, if the criterion of the ratio of the votes number in support to the request for the amount of funding is used. And, in this way, these branches (thematic directions) receive a "hidden" preference in the form of an increase in the number of the PP projects accepted for implementation, relative to other branches (thematic directions). We will have the opposite situation in the case of using the criterion of the vote number in support.

In this work, we decided to extend the research, the results of which we presented in works [7, 8], to the entire period in which the selection of the PP projects for implementation in the city of Kyiv was carried out, that is, starting from 2017. We also took into account the division of the PP projects between the "small" and "large" categories, which took place according to the PP projects that were submitted for implementation in 2018, 2021 and 2022 (plan).

The non-parametric Kruskal-Wallis significance test, which is a multivariate generalization of the Wilcoxon-Mann-Whitney test, was used.

The test statistic used for the Kruskal-Wallis test is designated H . Its formula is:

$$H = \frac{12}{N(N + 1)} \left[\frac{(\sum R_1)^2}{n_1} + \frac{(\sum R_2)^2}{n_2} + \dots + \frac{(\sum R_k)^2}{n_k} \right] - 3(N + 1), \tag{1}$$

with $k - 1$ degrees of freedom (k is the number of populations), where

$\sum R_1, \sum R_2, \dots, \sum R_k$ are the sums of the ranks of samples $1, 2, \dots, k$.

n_1, n_2, \dots, n_k are the sizes of samples $1, 2, \dots, k$.

N is the combined number of observations for all samples.

The distribution of the sample H statistic is very close to the chi-square distribution with $k - 1$ degrees of freedom if very sample size is at least 5. Therefore, we will use chi-square in formulating the decision rule [11].

The Kruskal-Wallis significance test was used to check the null hypothesis about the significance of the differences between the PP projects in terms of the funding request size. This criterion is a rank one; accordingly, it is invariant with respect to any monotonic transformations of measurement scales. Alternative hypotheses about differences between the PP projects in terms of funding requested amount are insignificant. The results of the calculations using the software product IBM SPSS Statistics 22 are given in the table 5.

Table 5. Before testing the null hypothesis about the significance of differences between the PP projects admitted to the vote in the city of Kyiv in 2017–2021, different thematic directions by the size of the request for the amount of funding

Indicator	Year of implementation of PP projects								
	2017	2018			2019	2020	2021		
		in general	the category by request for the amount of funding				in general	the category by request for the amount of financing	
			small	large				small	large
The level of significance obtained	0,039	0,001	0,682	0,053	0,000	0,000	0,000	0,000	0,029
Acceptable level of significance	≤0,05	≤0,05	≤0,05	≤0,05	≤0,05	≤0,05	≤0,05	≤0,05	≤0,05

As it can be seen from the table 5, the null hypotheses regarding the significance of the differences between the PP projects admitted to the vote, different thematic directions by the size of the request for the amount of funding were rejected at the significance level of 0.050 for the "small" and "large" categories in 2018, for all other years and categories, which were highlighted in them, including

2018, considered in general, null hypotheses were not rejected. The cases when the null hypotheses were not rejected indicate the existence of a significant difference between the PP projects in the size of the request for the volume of financing of various thematic directions in the relevant categories in the considered periods.

As it follows from the table 5, the division of the PP projects in 2018 into the categories of "small" and "large" according to the request for the amount of funding, as it can be assumed, became a prerequisite for the fact that the difference between the PP projects of different thematic directions, distinguished within these categories, turned out to be insignificant in contrast to those cases, when the projects of 2018 were considered in general. At the same time, under similar conditions, i.e. when the above-mentioned categories – "small" and "large" began to be distinguished again, i.e., in 2021, the comparison of the PP projects of different thematic directions within the given categories revealed the significance of the differences between them, as well as when considering them in general.

Thus, it can be assumed that the presence of significant differences in the PP projects by thematic directions in the conditions of distinguishing the categories "small" and "large" in terms of the size of the request for the volume of financing is of a situational nature. It is possible to recommend before conducting the actual voting, provided that a significant difference in the amount of requests of the PP projects for the amount of funding by thematic directions is detected, which, when choosing any of the two evaluation criteria discussed above, "discriminatorily" affects the selection for implementation of the certain thematic directions PP projects based on the results of the vote, set fixed budgets not only for the categories of the "small" and "large" PP projects – by the size of the request for the amount of funding, but also for the thematic areas identified within the respective categories.

Conclusions of the conducted research and prospects for further exploration in this direction.

The paper substantiates the expediency of implementing an approach to distinguishing thematic directions for the PP projects in accordance with the list and content of thematic directions, according to which the expenditures structure of the general budgets of territorial communities is formed, first of all, by functions. On the one hand, when considering the totality of projects, including the PP projects, territorial communities as a means of implementing and, under certain conditions, forming the strategy of the territorial community, this ensures the connection of the PP projects totality, as a portfolio, with the development strategy of the territorial community. On the other hand, such an approach regarding the selection of thematic directions for the PP projects is a prerequisite for increasing the effectiveness of the implementing selected PP projects due to the expectation of a positive effect from synergy. First of all, this can happen through the centralization of purchases of the same resources type from the outside and/or the implementation of the PP projects together with other projects of the territorial community on a common pool of resources that are often the community's own – people, equipment, etc. There follows the expediency of considering PP projects during initiation, planning, as well as optimization in the first two phases of the PP portfolio life cycle, for the most part, exclusively as part of the PP portfolio. At the same time, in the phase of implementation of the PP project portfolio, which also involves optimization in this phase, individual PP projects can be considered simultaneously both as part of the PP portfolio and as part of portfolios formed in accordance with the structure of general budgets expenditures of territorial communities.

A method of structuring portfolios of the PP projects by thematic directions is proposed, which, within the application framework of the situational management methodology, involves the use of the Kruskal-Wallis significance test.

Further research in this direction should be focused on the improvement and development of scientific and methodological approaches to the optimization of aggregates of the PP projects, such as those presented in portfolios, at the phases of initiation, planning and implementation of portfolios.

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