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THE ALGORITHM OF DECOMPOSING THE GOAL INTO PERFORMANCE INDICATORS OF TARGET PROGRAM

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Gordiyenko V. O., Grygorash O. V. The Algorithm of Decomposing the Goal into Performance Indicators of Target Program

The achievement of high results of the implementation of target programs in the leading countries is assured by clear definition of the goal, formation of specific objectives and the program performance indicators, which is required by the program and target planning. Ukraine has already developed legal basis for use of the program and target method in the budget process, but in practice implementation of target programs is still attended with use of the traditional method of planning. The article carries out an estimation of accordance of the target program components with requirements of the program-target method on the example of the regional Program for development of small and medium business for 2015-2016 years. On the basis of the system-logistic approach, the goal, objectives and performance indicators have been composed. With the help of the prioritization method the significance measure of the first-level objectives has been determined.

Keywords: program and target method (PTM), target program (TP), small business (SB), goal, objectives, performance indicators.

Fig.: 2. **Tbl.:** 7. **Bibl.:** 10.

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Гордієнко В. О., Григораш О. В. Алгоритм декомпозиції мети в результативні показники цільової програми

У провідних країнах світу запорукою досягнення високих результатів запровадження цільових програм виступає чітке формулювання мети, формування конкретних завдань та визначення результативних показників виконання програм, що передбачено вимогами програмно-цільового планування. В Україні вже розроблено нормативно-правове забезпечення застосування програмно-цільового методу в бюджетному процесі, проте на практиці реалізація цільових програм все ще супроводжується використанням традиційного методу планування. У статті проведено оцінку відповідності складових елементів цільових програм вимогам програмно-цільового методу на прикладі регіональної Програми розвитку малого і середнього підприємництва у Дніпропетровській області на 2015–2016 рр. На основі системно-логістичного підходу сформульовано мету, завдання та результативні показники зазначеної програми. За допомогою методу розстановки пріоритетів визначено ступінь значущості задач першого рівня.

Ключові слова: програмно-цільовий метод (ПЦМ), цільова програма (ЦП), мале підприємництво (МП), мета, завдання, результативні показники.

Рис.: 2. **Табл.:** 7. **Бібл.:** 10.

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Гордиенко В. А., Григораш О. В. Алгоритм декомпозиции цели в результативные показатели целевой программы

В ведущих странах мира залогом достижения высоких результатов внедрения целевых программ выступает четкая формулировка цели, формирование конкретных задач и определение результативных показателей выполнения программ, что предусмотрено требованиями программно-целевого планирования. В Украине уже разработано нормативно-правовое обеспечение применения программно-целевого метода в бюджетном процессе, однако на практике реализация целевых программ все еще сопровождается использованием традиционного метода планирования. В статье проведена оценка соответствия составляющих элементов целевых программ требованиям программно-целевого метода на примере региональной Программы развития малого и среднего предпринимательства в Днепропетровской области на 2015–2016 гг. На основе системно-логического подхода сформулированы цель, задачи и результативные показатели указанной программы. С помощью метода расстановки приоритетов определена степень значимости задач первого уровня.

Ключевые слова: программно-целевой метод (ПЦМ), целевая программа (ЦП), малое предпринимательство (МП), цель, задачи, результативные показатели.

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In the context of implementing the decentralization reform, improvement of the efficiency of using budgetary resources becomes more and more important. The adopted in 2002 Concept of Using the Program and Target Method in the Budgetary Process has not been implemented to the full extent in the course of the planning and execution of regional programs. It happened due to a number of reasons, including the launching of the programs without a preliminary studying of existing social and economic problems; the lack of coordination between programs and their duplication; the irregularity of timing of budget expenditures; the incorrect formulation of the goal, objectives and performance indicators of implementation of the programs. The absence of the mentioned components makes it impossible to evaluate of the level of goal achievement and the level of efficiency of the budgetary resources usage.

Problems of development and improvement of budget management on the basis of the program and target method (further referred to as PTM) are studied in works of many foreign scientists, namely O. Andreeva, M. Afanasiev, Hans de Bruijn, E. Quade, D. Cleland, W. King, J. O'Connor, A. Lobko, B. Rayzberh, S. Taylor, Yu. Yaremenko, and national scientists: O. Amosha, O. Baranovskyi, I. Zapatrina, T. Yefimenko, Ts. Ohon, V. Oparin, K. Pavlyuk, V. Pleskach, V. Fedosov, I. Chuhunov, I. Shcherbyna.

In their publications the authors highlight the history of the method implementation, its importance for the budget system development, and its main differences from the item-by-item method of planning budgetary expenditures, making the emphasis on the imperfection of using the method for solving social and economic problems in Ukraine.

At the same time, the issue of theoretical and practical improvement of the method implementation for planning local budgets is still open, in particularly as regards the formulation of the goal, objectives, performance indicators and determining the level of objectives significance.

The *object* of the research is the formulation of program components (goal, objectives and performance indicators) on the basis of the system and logistic approach. The *subject* of the research is the Target Program of Small and Medium Business Development in Dnipropetrovsk Region for 2015–2016.

According to the Concept of Using the Program and Target Method in the Budgetary Process (the Order of the Cabinet of Ministers of Ukraine dated 14.09.2002 #538-r) [8], the components of the budget program are: the goal (solving the problem that restrains social and economic development), the objectives (decomposition of the goal), performance indicators (evaluating the level of achievement of the goal and implementation of the objectives). The algorithm of decomposing the goal into objectives of the Target Program (further referred to as TP) is presented in Fig. 1.

The goal may be represented in two ways:

- ✦ *goal as a result* (specific, measurable and time-bound) – according to the SMART methodology [3];
- ✦ *goal as a course* (direction of actions) – determination of the goal by means of PTM [1].

Goal as a result and goal as a course should be formulated briefly and clearly, they should represent the main content of the program implementation. The analysis of similarities and differences at setting the goal using PTM and SMART methodology are presented in Tbl. 1.

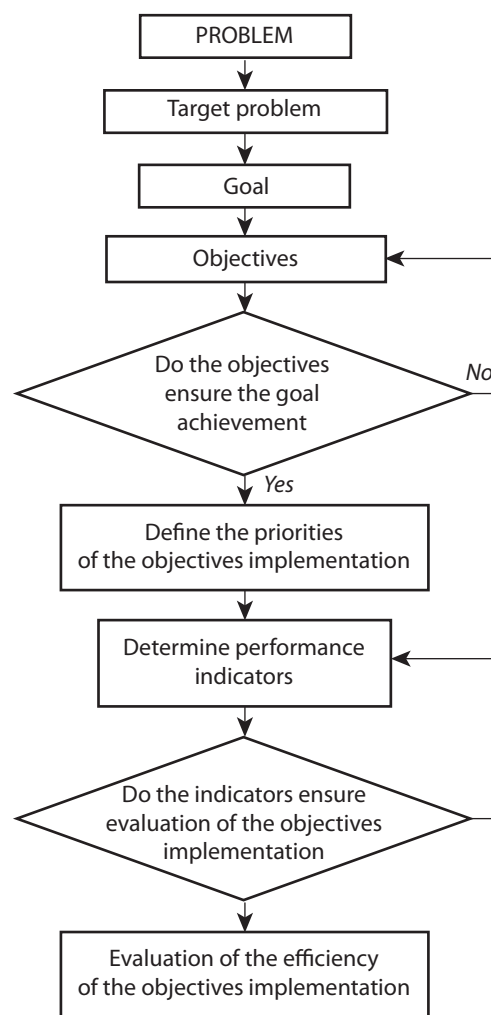


Fig. 1. The algorithm of decomposing the goal into objectives of the Target Program

Source: developed by the authors.

This approach to the goal formulation is missing in regional target programs. The ways of formulating the main provision of the program (its goal) are considered using the example of the Target Program of Small and Medium Business Development in Dnipropetrovsk region for 2015–2016 (Tbl. 2) [7].

An insufficiently precise definition of the goal leads to complications in the formation of objectives aimed at solving social and economic problems and their alignment with the requirements of PTM (objectives 1, 3, 4 in Tbl. 3). It is reasonable to use 'objectives tree' to determine the TP objectives of. It allows considering the goal simultaneously with the ways of its achievement (objectives) [1].

Let us determine in points the significance of the 1st level objectives using the prioritization method (Tbl. 4, Tbl. 5).

The main dependences of pairwise comparisons of the prioritization method:

$$F_{ij} = \begin{cases} 1.5 & \text{if } F_i > F_j \\ 1 & \text{if } F_i = F_j \\ 0.5 & \text{if } F_i < F_j \end{cases},$$

where $F_i > F_j$ means that the i th goal is more preferable than the j th goal; $F_i = F_j$ means that equal goals are compared;

Table 1

The analysis of common and distinctive features of setting the goal using PTM and SMART methodology

Peculiarities of the goal formulation		Causes of differences
PTM	SMART	
May be non-specific and can only have direction of action	Specific: characterized by the exact reflection of its content, measurement and time of execution. The goal achievement may be characterized only by a specific result, which was received using certain instruments under certain circumstances	PTM uses the system approach. The goal is decomposed into objectives and performance indicators that specify the goal
May be qualitative (i. e. non-measurable)	Measurable, i.e. can be represented numerically or in another way evaluating the level of its achievement	PTM uses indicators for measurement
Attainable	Attainable, i. e. real, is not beyond the scope of possibilities of the executors.	No difference
Feasible	Feasible	When using PTM the goal should be formulated as an ambitious one. The feasibility is achieved by decomposition of the goal into objectives
Not time-bound	Time-bound	The timing is achieved by decomposition of the goal into objectives
Agreed, i.e. the goal and the objectives should not be considered separately, but should be interrelated	No peculiarities	
Generally accepted, i.e. should take into account the needs, desires, traditions, values formed in society	No peculiarities	
Flexible, i. e. implying a possibility of plans correction	No peculiarities	

Source: developed by the authors.

Table 2

Proposals on the goal formulation

The goal	
Formulated in the Program	Proposals on the formulation
The goal of the Program is to create appropriate conditions for the implementation by residents of the region of their constitutional rights for business activity; increase the welfare of Dnipropetrovsk citizens through developing SMEs and facilitating saturation of the regional market with high quality goods and services produced by the enterprises; direct actions of local authorities, local governments, business entities, public associations of entrepreneurs, institutions, market infrastructure to solving topical issues that hinder the development of private initiatives and formation and implementation of an effective state-public system of business support and protection.	Improvement of the effectiveness and efficiency of small enterprises in Dnipropetrovsk region

Source: developed by the authors based on [7].

$F_i < F_j$ means that the j^{th} goal is more preferable than the i^{th} goal.

The iterative calculation of estimates is interrupted when the difference between the integral estimates is small enough, which determines the significance of the objective. The integral estimate of the last order is chosen to be the significance indicator of the objectives.

The pairwise comparison of the objectives is represented in Tbl. 4.

The integral estimate $P_i(0)$ is represented by the sum of the results of the objectives pair wise comparison.

Calculations:

$$1. P_1(0) = 0.5 + 1.0 + 1.5 = 3;$$

$$2. P_2(0) = 1.0 + 1.5 + 1.5 = 4;$$

$$3. P_3(0) = 0.5 + 0.5 + 1.0 = 2$$

The normalized integral estimate is calculated as the ratio of the integral estimate of zero order to the total sum of integral estimates.

Proposals on formulation of the target program objectives

Objectives	
Formulated in the Program	Proposals on the formulation
1. The arrangement of statutory regulation of business activity. 2. Financial, credit and investment support. 3. Resource and information provision; formation of infrastructure of business support. 4. Target projects and sub-programs	1. To implement the mechanism of tax stimulation of small enterprises (according to the type of economic activity). 2. To implement the mechanism of budget stimulation (financing the loans and interest payment). 3. To implement the budget and tax stimulation for small business entities engaged in innovative activities

Source: developed by the authors based on [7].

Table 4

The result of the pairwise comparison of the 1st level objectives

Objective	1	2	3
1	1.0	0.5	1.5
2	1.5	1.0	1.5
3	0.5	0.5	1.0

Source: developed by the authors.

Calculation:

- $P_{H_1}(0) = 3/9 = 0.33;$
- $P_{H_2}(0) = 4/9 = 0.44;$
- $P_{H_3}(0) = 2/9 = 0.23.$

The calculation results are presented in Tbl. 5.

Table 5

The calculation of significance of the 1st level objectives

Objective	1	2	3	$P(0)$	$P_H(0)$
1	0.5	1.0	1.5	3.0	0.33
2	0.5	1.0	1.5	4.0	0.44
3	0.5	0.5	1.0	2.0	0.23
				9.0	1.00

Source: developed by the authors.

The diagram of the objectives significance is presented in Fig. 2.

The above calculation allows to choose the 1st level objective "To implement the mechanism of budget stimulation (financing the loans and interest payment)".

Let us evaluate the effectiveness of the TP implementation using the most applicable system of indicators that should provide reliable information about whether the selected objectives were achieved in compliance with the defined program goals [4; 6; 9]. The system of TP indicators is an important element of the process of budget preparation and execution by means of PTM and the main feature distinguishing it from the item-by-item (traditional) method of budgeting, which is based primarily on the performance indicators of costs. Due to the evaluation system, PTM allows to estimate the expected results achieved by means of the money spent and determine the direct correlation between the resources and results, and thus ensure the implementation of the principle of efficiency and effectiveness in the preparation and implementation of budgets.

The system of evaluation indicators should be developed in compliance with specific objectives but not the goal. Experience shows that developed countries applying PTM in the budget process sometimes use performance indicators to evaluate achievement of the goal but not a separate objective. However, the approach to the evaluation of each objective is more efficient because the goal decomposition into objectives contributes to more precise determination of indicators.

These performance indicators are given in the passport of TP [5]. However TP executives define (interpret) these indicators differently. To specify the choice of indicators the authors have developed additional questions, to which indicators of the four groups should give an answer (Tbl. 6). These questions allow specifying relative performance indicators.

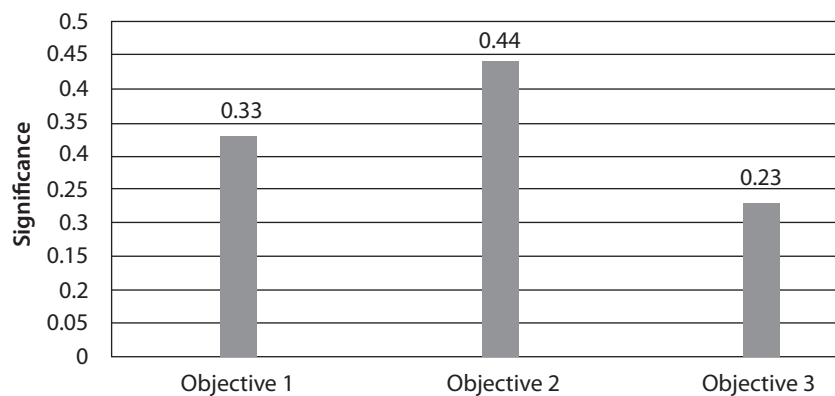


Fig. 2. The diagram of the objectives significance

Source: developed by authors.

Table 6

Additional questions to specify performance indicators

Indicators	Questions to which the indicators should give an answer
Expenses (resources)	What expenses (resources) and in what amount are required to achieve the TP objectives?
Product	What is going to be received? What scope of work is to be done?
Efficiency	What is the cost per product unit? What is the cost of resources per product unit?
Effectiveness (quality)	What benefits will the consumer have from the TP objective achievement? What is the level of the TP goal achievement?

Source: developed by the authors.

The main indicator of TP is the effectiveness indicator (quality), only this indicator can answer the question whether the goal is achieved. Therefore, all approaches to evaluation through complex indicators can not be correct, because they do not answer this question. However, the result received at using them will depend on the system of indicators and their significance.

The approved and recommended effectiveness indicators of the Target Program of Small and Medium Business Development in Dnipropetrovsk region for 2015–2016 are presented in *Tbl. 7*.

Effectiveness indicators of the Program of Small Business Development

Approved	Recommended
<p><i>Increasing:</i></p> <ol style="list-style-type: none"> 1. The number of small enterprises by 3.0%. 2. The number of employees by 2.8%. 3. The number of individual entrepreneurs by 1.0%. 4. The part of profitable enterprises up to 65.2%. 5. The number of objects of infrastructure for supporting entrepreneurship on average by 1%. 6. The number of highly qualified specialists at business entities. 7. Activation of business development and increasing its competitiveness 	<ol style="list-style-type: none"> 1. The share of small enterprises in the volume of products sold by the region, %. 2. The level of employment in small business, %. 3. The part of high-tech enterprises in total, %. 4. The part of entrepreneurs satisfied with the created conditions of small business development, %

Source: developed by the authors based on [7].

The analysis of the approved indicators allows concluding that indicators 1, 2, 3, 5, 6 do not comply with the requirements of the formulation of effectiveness indicators. Indicator 7 is general in nature. The statistical reporting on indicators 6 and 7 is not published. Among the approved indicators only the indicator “The part of profitable enterprises” is a qualitative indicator. Although, in our opinion, this indicator is not objective, since a small enterprise is interested in reducing the object of taxation. Analyzing the statistical reporting on the development of small enterprises we can state that most of them are unprofitable. Then there arises the question about the purpose of their functioning.

The proposed indicators fully meet the PTM standards on formulation of qualitative indicators and can be obtained from the official statistical reporting.

CONCLUSIONS

The low efficiency of implementation of the regional programs is determined by several factors, in particular by incorrect formulation of the program components. Using PTM for budget planning and execution is formal. That is why these programs need improvement and their alignment with the program and target method.

To increase the effectiveness of target programs and control the use of resources applying the system and logistic approach, the goal, objectives and performance indicators of the Target Program of Small and Medium Business Development in Dnipropetrovsk region for 2015–2016 have been defined.

With the help of the prioritization method the evaluation of significance of objectives has been performed. The sequence of achieving objectives is defined on the basis of their significance. ■

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