

Contributions to the evaluation of the result of Cuban government management in the local environment



Contribuciones a la evaluación del resultado de la gestión gubernamental cubana en el entorno local

Contribuições para a avaliação dos resultados da gestão do governo cubano no ambiente local

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ABSTRACT

The evaluation of the result of local public management and the measurement of its effectiveness, as a criterion for improvement, is a main topic in contemporary specialized literature because of its contribution to social welfare and development; however, the study carried out in the last 30 years shows diverse conceptions and methodological proposals around it. The present work has as an objective: to develop an approximate conceptual model to the improvement needs of the Local Organ of Popular Power in Cuba, taking into account theoretical considerations and good practices from the national and international environment, and the use of diverse theoretical and empirical methods that accompany the research process. The results of the study recognize the relevance of the model and its indicators for the agile, flexible and integral measurement of local public management, turning them into a tool to guide the decision making of directors and public officials.

Keywords: effectiveness; result evaluation; local public management; indicators

RESUMEN

La evaluación del resultado de la gestión pública local y la medición de su efectividad, como criterio de mejora, resulta un tema principal en la literatura especializada contemporánea por su aporte al bienestar social y al desarrollo; sin embargo, el estudio realizado en los últimos 30 años evidencia diversas concepciones y propuestas metodológicas en torno al mismo. El presente trabajo tiene como objetivo: desarrollar un modelo conceptual aproximado a las necesidades de perfeccionamiento de los Órganos Locales del Poder Popular en Cuba, tomando en cuenta consideraciones teóricas y buenas prácticas del entorno nacional e internacional y el empleo de diversos métodos teóricos y empíricos que acompañan el proceso de investigación. Los resultados del estudio reconocen la pertinencia del modelo y sus indicadores para la medición ágil, flexible e integral de la gestión pública local, convirtiéndolos en una herramienta para orientar la toma de decisiones de directivos y funcionarios públicos.

Palabras clave: efectividad; evaluación del resultado; gestión pública local; indicadores

RESUMO

A avaliação dos resultados da gestão pública local e medir a sua eficácia como critério de melhoria, é um tema importante na literatura especializada contemporânea pela sua contribuição para o bem-estar e desenvolvimento social; contudo, o estudo realizado nos últimos 30 anos mostra várias concepções e propostas metodológicas à sua volta. O presente trabalho visa desenvolver um modelo conceptual que aborda as necessidades de melhoria dos Órgãos Locais do Poder Popular em Cuba, tendo em conta considerações teóricas e boas práticas do ambiente nacional e internacional e o uso de diversos métodos teóricos e empíricos que acompanham o processo de investigação. Os resultados do estudo reconhecem a relevância do modelo e dos seus indicadores para a medição ágil, flexível e abrangente da gestão pública local, tornando-o uma ferramenta para orientar a tomada de decisões dos gestores e dos funcionários públicos.

Palavras-chave: eficácia; avaliação dos resultados; gestão pública local; indicadores

INTRODUCTION

The global changes that took place in 1990 and were accentuated in the 2010 decade have radically impacted government structures at all levels, which has brought about modifications in performance evaluation processes, adjusted to different contexts, in particular, local structures, given the proximity to the citizenry and as a result of the decentralization and deconcentration processes. Thus, evaluation has become an indispensable administrative tool to measure the results of management, contribute to improve the ability of the government to perform its functions and strengthen the credibility of the public sector, specifically at the local level.

Today, governments of various nations are paying more attention to evaluation processes, perceiving their benefits, whether through the work of government agencies or external audits. By obtaining information on the budget process, planning and other elements of public management, it is easier to assess the results of the achievement of the established objectives, the services and products generated, as well as their effect on determining possible changes and/or transformations.

Since the dawn of the 21st century, approaches have varied to try to meet the demand for basic services, respond to new challenges represented by sustainability, properly interpret the common good and integrate into their processes the many interests in public action. As a result, there is a diverse orientation, represented by a wide range of variables, which limits the performance of a comprehensive assessment of the outcome of government management, considered by Pollitt and Dan (2011) as scattered and multi-thematic, since it is developed in specific scenarios and focused mostly on programs and projects with a fragmented vision of what has been achieved.

The study recognizes some regions that define and promote initiatives at local levels to measure results in public services and programs, through management indicators, although only in a few cases is compliance with legal standards, which is mandatory. This approach is more recurrent in Anglo-Saxon countries, while in Latin America there is a general tendency to use the criteria of management effectiveness and quality, aided by information systems, preferably with municipal economic and financial indicators, which constitute a limitation in the evaluation process, since they are not essentially designed to measure the result of objectives and pre-established goals with a social vision, basically framed in the relationships derived from inputs, processes and products within the framework of internal management.

The assumed measurement variables have constituted an expression of what is intended for decision making in the interest of improving management, providing knowledge and making necessary adjustments. Among the most applied classifications are:

- efficiency: resources used and their cost, optimizing the input-output ratio
- effectiveness: meeting program objectives
- results: comparison of the impact of the volume of services provided
- quality: user perception and opportunities for access to services
- equity: equal access to services
- processes: they value aspects related to the activities
- structure: cost and economy aspects
- strategic: impact of external factors on the services provided
- economic: the general economic and financial situation, associated with the execution and settlement of the budget (expenditure, investment, income, others)
- productivity: relationship between the number of products offered and the resources consumed

Among the obstacles that limit the measurement of management results, the insufficient development of information systems, still permeated by general data on financial activities, is recognized. On this subject, several international organizations and

institutions (International City/Country Management Association, Institute for Social Development, Latin American Institute for Economic and Social Planning, Latin American Center for Development Administration) have made methodological advances over the last 10 years, which expand the data and comparative information, facilitating the measurement of indicators with respect to processes that generate results and impacts of economic policy and local development, identification of priorities, urban competitiveness, transparency in local governments, state capacity associated with governance.

The transition from a bureaucratic-traditional management model to a results-oriented one has revitalized public management, which is still insufficient to assume the essentials of an effective evaluation in tune with social demands, where positive changes in the environment reflect citizen welfare and the perception of public value, both in the operational and strategic aspects. At the same time, the technological clusters formed are inclined to define the quality of governance and promote the application of territorial public policies to expand the management capacity of local governments in the perspective of local development (Gilio, 2016).

In this evolution, the effects on the environment and the effectiveness as a criterion of superior quality in public administration gain strength when comparing the result with the effect caused in society, although with varied approaches and measurement procedures, which are not very standardized. Nevertheless, its incorporation provides an evaluation of excellence due to the integral nature of the management result.

Despite their theoretical recognition, evaluation approaches are diverse and sometimes lack integrality, attending to thematic specificities and influences of scenarios, contexts and areas. An important group of practices associate evaluation with the fulfillment of goals, while others link it to public services as an activity of the State, which constitutes the essence of government practice and is indispensable to social life, under criteria of economic efficiency, responsibility, and transparency. However, in order to be fully evaluated, other variables must be incorporated, such as the identification of the needs and benefits generated, so that the true effect of the management of the changes produced can be appreciated.

On this subject, according to Armijo (2011), the measurement of public policy objectives has predominated, focusing on the solution of problems in various areas. In this line of action, there is a trend towards knowledge of the social-territorial reality for which internal processes tend to be improved, associated with the establishment of communication channels with citizens and with a view to local development. As a result, other indicators of social value are added to the management indicators to provide a follow-up system for the population's quality of life and to monitor the efficiency, effectiveness and effects of public policies, as confirmed by Hernández (2017). These terms have been present as basic pillars of public administration.

The above is explicit and comprehensive with respect to the purpose of the evaluation of the result, although its orientation towards the quality of the effect and the change produced by the knowledge of the needs, converted into a conditioning premise for the

estimation of the public value that it contributes to the quality of local governance and, stimulates development (Ardila Delgado & García Solano, 2017).

Similar diversity can be observed in the methodological proposals, focused on instruments characterized by insufficient orientation when measuring changes, with respect to the initial state of things and the non-implementation of improvement actions, scarce linkage of public policy management to the real needs of society, dimensions that define it and the criterion of effectiveness, as a perspective that promotes integrality and favors improvement. These aspects denote little recognition of the relationships of dependence between the variables of the internal and external environment.

Authors such as Guzmán (2007), recognize the knowledge of the population's needs and follow up on the consecutive actions to achieve satisfaction, however, the link between the objectives proposed in the planning, with the management of policies and the projection of development is insufficient. According to Armijo (2011), there are multiple variables in the designs that favor an evaluation that is closer to society's satisfaction, although more inclined to impact, without evaluating the result that originates it and the government's response capacity to provide and transform the services.

A redundant aspect in approaches, evaluation criteria and methodological proposals is the term program, as the central axis on which the inputs of resources, the outputs produced with the work done (products and services), the relationships between resources, results and objectives are established, as well as a means to materialize the State-society relationship.

In the Cuban scenario, characterized by the increase of the effectiveness of national programs in the solution of the population's basic needs and the introduction of reforming tools in management, facing the challenge of reconciling the scarce available resources with the community's interests (Capote Pérez et al., 2018), the conditions for a more effective management and its evaluation are increased, particularly in the municipalities, starting from the improvement program of the Local Organs of the Popular Power (OLPP in Spanish) and the insufficiencies recognized by different researchers on the current evaluation process, summarized in:

- the scarce strategic vision of public management (Arias Gilart et al., 2019; Gutiérrez Castillo, 2016; Torres Páez et al., 2018)
- limited methodological tools that facilitate the measurement of effectiveness (Calves Hernández & Machín Hernández, 2016)
- low development of information systems, based on statistical data (Bello Hernández et al., 2013)
- lack of referential regulatory instruments (Salgado García et al., 2018)
- inadequate importance to the feedback of the effect of the changes produced (Calves Hernández & Pérez Othón, 2016)

The symptoms are reflected in the annual evaluations of these organs, which concentrate on quantitative data about the daily solution of daily problems, without considering the qualitative contribution of management, basically related to services and influenced by the lack of local development strategies, predominance of measurements of the

economic-financial result, which causes insufficient appreciation of the social benefits achieved and lack of data in the information flows of the established work systems and indicators that do not allow knowing the effectiveness of the management and the analysis of the changes produced.

The aspects addressed show a scarce development and integral evaluation of the result, indicating the need to continue attending to its study because of the importance it has in guiding local public management, ensuring the fulfillment of its missions around good governance, meeting the sustainable development objectives of Agenda 2030 and conducting the actions of officials to finally achieve highly responsible and sensitive public institutions, being the primary challenge of public administration. The experience in the evaluation of the result, in the local public management, allows observing that the measurement system is built, integrating the most important variables that commit it in the interaction between defined dimensions and the effectiveness. Therefore, the objective of this work is to develop a conceptual model, which approaches the improvement needs of the Local Organs of Popular Power in Cuba, taking into account theoretical considerations and good practices from the national and international environment, and the use of diverse theoretical and empirical methods that accompany the research process.

MATERIALS AND METHODS

The methodology used considered the use of theoretical methods: the historical-logical and the analysis-synthesis for the determination of theoretical and empirical antecedents of evaluation processes, their historical development and tendencies through the general and discriminative bibliographical review with documentary analysis, based on the diachronic comparison of experiences and good practices; studies presented on the basic dimensions that characterize an effective public management, as well as the concepts of evaluation of the result and effectiveness of local public management that enhance the theoretical arguments that support the new proposal. In addition, the induction-deduction method to identify manifest insufficiencies in the state of the art and key variables associated with the positive aspects of evaluative references consulted on government performance.

Through the systemic-structural method, there were studied the interrelations in the OLPP in Cuba, which allowed defining the relationship by coincidence or similarity, deriving a base for the conformation of indicators and, with the support of an impact matrix, determining the influence level and calculating the alignment degree they have; using modeling, it was analyzed the conceptual proposal of the model with strategic, systemic and participative approach.

The use of empirical methods, -surveys and interviews with managers, officials and experts, together with observation in the field, concordance coefficients and direct observation-, supported the collection of information that ensured the theoretical foundation and validation of the model, together with statistical methods, applied matrices and factor analysis through the statistical program SPSS (Statistical Package

for the Social Sciences), version 20, where the data were grouped with the software UCINET.6 and plotted with the software Mind Manager X5.

The study took into account the criteria of experts, national and international academics, institutions, as well as managers, officials and citizens. In identifying good practices, an assessment was made, in binary form, of the characteristic features present in the sample of evaluations carried out, and those with the highest scores were selected.

RESULTS AND DISCUSSION

From the study of 29 publications in academic databases¹, whose thematic core responded to the results of management and evaluation processes, concepts, approaches, criteria and methodological references were identified, most of which were subject to programs and projects with a segmented vision regarding management results and it was possible to visualize within the evaluation spectrum characteristic features and evaluation perspectives.

Of the characteristic features, it was possible to identify "good practices", taking into account the attributes defined by the United Nations Educational, Scientific and Cultural Organization (2018) in the framework of the MOST program (Management of Social Transformations), related to the innovative character (1): develop solutions and creative actions; the tangible effect (2): demonstrate a positive impact on improvement; sustainability (3): maintain socio-economic requirements and produce lasting effects; and replicable (4): possibility of application elsewhere (4). Another attribute considered was transparency (5): accessible information on public management. The results obtained, after the binary analysis, are shown in table 1.

Table 1 - Evaluation of the attributes in the characteristic features

Characteristic features	Evaluation attributes					Total
	1	2	3	4	5	
Management of public policies on social needs	1	1	1	1	1	5
Assessment of programs and projects focused on changes and the socio-economic development of society with a systemic vision	1	1	1	1	1	5
Fulfillment of objectives and goals with criteria of efficiency, efficacy and effectiveness	1	1	1	1	1	5
Internal and external environment consultations	1	1	1	1	1	5

¹ The search was performed on the academic social network ResearchGate, Google Scholar, SciELO, Redalyc, DOAJ and ScienceDirect.

Use of performance indicators with quantitative and qualitative information in defined dimensions	1	1	1	1	1	5
Comparison of intermediate and final results with quantitative data from a baseline	0	1	0	1	1	3
Diagnosis of public problems	0	0	0	1	1	2
Knowledge of beneficiaries and medium- and long-term effects	0	1	1	1	1	4
Generation and/or compliance with regulations and standards	1	1	1	0	0	3
Identification of areas requiring immediate effects and improvement actions	1	1	0	1	1	4

Source: Own elaboration

The analysis carried out determined with greater score: the management of public policies on social needs, an aspect that guides government action by taking into account public needs and problems, while being an effective, sustainable and replicable practice that, if fulfilled with transparency, contributes to the levels of effectiveness of management, the assessment of programs and projects focused on change and the socioeconomic development of society with a systemic vision and in a creative way, and the establishment of objectives and goals to be met, following criteria of efficiency and effectiveness. Other good practices, which complement the previous ones, refer to consultation, internal and external environments that allow us to know the perception of what has been achieved, using various instruments that provide the necessary information and data for measurement through indicators that facilitate the quantitative and qualitative evaluation of the results achieved.

The rest of the features did not reach the required scores to be considered as good practices, regarding the evaluation of management results. The comparison of intermediate and final results, with quantitative data, from an initial situation, requires creative actions to isolate the effects in different time periods and to determine the result and impact of individual programs in specific areas, affecting sustainability due to the lack of management integrity, information on the real needs of the population and linkage of the associated policies. The above establishes links with the diagnosis of public problems, whose realization demands the broad participation of social factors and the correspondence between government projection, tangible effects and demands.

On the other hand, the knowledge of beneficiaries and medium- and long-term effects is an indispensable condition to assess the result, but it lacks sustainability due to the lack of continuous monitoring, with solid information systems that validate them, particularly on those areas that require immediate effects and systematic improvement actions; both features are present in programs that lack comprehensive management. Also the generation and/or compliance with regulations and standards show organizational-functional edges, conditioned by temporary factors and the influence of interest groups, which could compromise the transparency of management, besides being specific to the context of application and generally typical of each place.

In order to determine the dimensions of effective public management and the features that distinguish it, a study of government practices over the last 30 years was conducted

on the concepts of good governance and territorial public performance, a review of documents and publications from various international organizations and institutions (Latin American Institute for Economic and Social Planning, Latin American Center for Development Administration, Economic Commission for Latin America and the Caribbean, United Nations Development Program); a survey of 26 officials and specialists with different roles and responsibilities. With the analysis and synthesis of 23 dimensions grouped with the software UCINET.6, by the level of coincidence and variables by similarity criteria -plotted with the software Mind Manager X5- the correlations were established and the data were reduced with the factorial analysis, resulting in four dimensions (strategic, economic, operational and social) in the main component. Respondents agreed on the maximum value given in the rating scale and interviewees considered adding the result dimension.

Based on these criteria, the method of experts was applied who evaluated the four dimensions proposed and ratified the initial result, subsequently determining the relative weights of each.

In order to project a comprehensive vision about the result of the management and its evaluation, 13 key variables² were selected and a binary square matrix was made, using the SPSS program and Jaccard's statistical similarity criteria. A network of relationships was obtained, which indicates that the greatest contributions are in: immediate effects perceived, correspondence with the objectives (strategic and operational), *fulfillment of the goals established in periods, benefits received as public value, beneficiary population with the actions carried out, identification of needs and effectiveness of the management*. The rest of contributions are associated with information, policies, orientation to socioeconomic development, management, resources and changes.

Given the logical relationship established between the determined variables, they were grouped taking into account three perspectives, referred to as: correspondence with the objectives, immediate effects, and management effectiveness. In the first case, it is determined whether the fulfillment of the goals set corresponds to strategic objectives and operational priorities, reflected in concrete actions that respond to needs and development. With the second one, the changes produced by the integral management are defined and the third one contains the first two with a layout of variables that assure the possibilities of success of the result, being able to project policies that respond to identified needs and contribute to the objectives and goals. The effectiveness of public management is the most integral perspective to evaluate its result.

With the result of the appreciation of the epistemological contributions of studies and research carried out and the analysis of good practices, independently of scenarios and contexts, a first approach to the conceptual model oriented to the evaluation of the result of local public management was achieved, consistent with the most current currents of thought and coherent with the demands of the process of improvement of the Local Organs of Popular Power. The proposed model must be distinguished by:

² Selected from 20 identified, by similarity of purposes, synonyms, coincidence of criteria and frequency of repetition through a binary matrix (source-variables).

- To contribute to the integral knowledge of the result and usefulness in the methodologies for the Municipal Development Strategies
- Design the evaluation with a strategic, systemic and participatory approach. The strategic approach takes into account the improvement of Cuban public administration and privileges the orientation of management to the satisfaction of collective needs with medium and long term goals; the systemic approach considers the interaction among the parts and with the environment, generating a synergic effect of governmental action. Finally, the participatory approach involves all the institutional and social factors in the evaluation process, which favors the creative interaction of the parties (decision-society levels) in the search for solutions to the problems
- Respond to the principles of integrality, by conceiving the evaluation with a global and proactive vision, allows the follow-up of the results and distinguishes trends that contribute to the timely decision making, contextualized with the government management in the locality. Likewise, it takes into account the principles of local development, with emphasis on citizen participation and the mobilization of local productive potential
- To define measurement criteria that drive the local administration to go through the improvement path in order to satisfy the needs and expectations of the citizens

The graphic conception of the model (Fig. 1) conceives the Municipal Organs of People's Power (OMPP in Spanish) with their main decision levels (Assembly and Administration) as a scenario and limit where the evaluation of the result is developed in a cycle moved by the action of an evaluation group; It includes the definition of systems that favor the measurement, valuation and improvement to develop the result evaluation by the action of an evaluation group of the results, from the interaction of the input elements, those that trigger the internal dynamics of the model and lead to the final evaluation, in charge of defining the effectiveness level reached as the main quality of the model output. The following is an analysis of the different components of the model, organized in its three main parts.

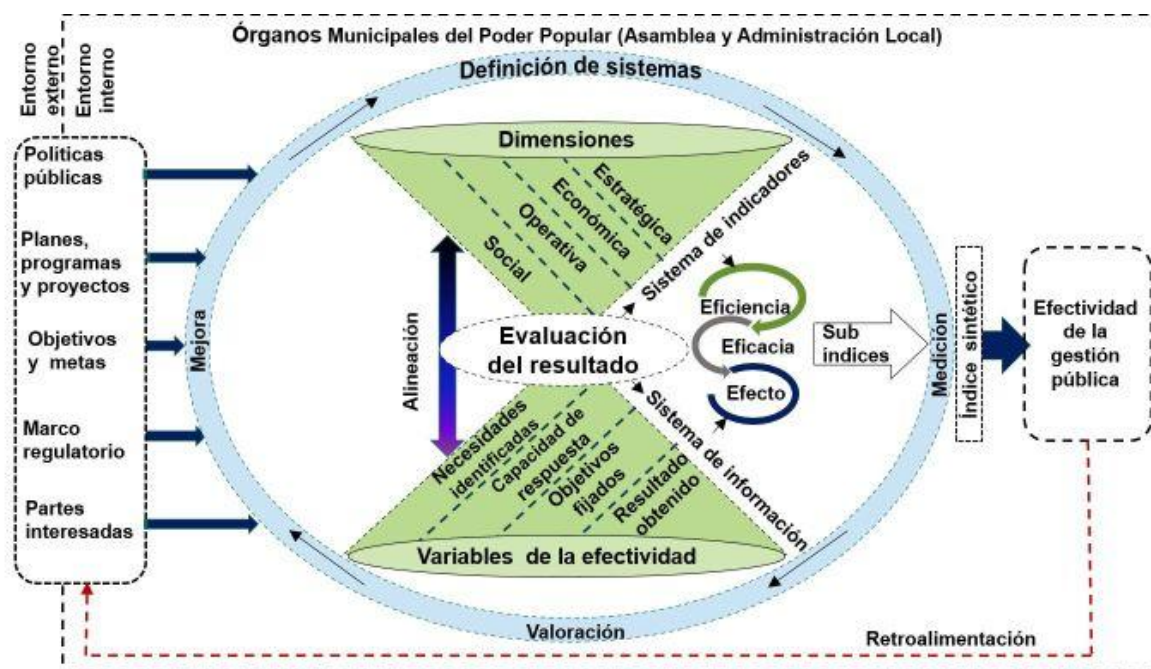


Fig. 1 - Graphic conception of the model for the evaluation of the local public management evaluation
Source: Own elaboration

Part 1. Inputs of the model

It considers the interconnection of five basic elements that generate the dynamics of public administration. Firstly, it highlights the public policies approved and implemented as a response of government action (national and territorial) to citizen and national demands and problems. In the conception of the model, the links between policies and the effectiveness of the management carried out are important, which will result in the evaluated result and the attention to public problems.

In the second place, it can be found programs and projects as a way to materialize passed and implemented policies according to the answer capacity that is available for the public value creation. Thirdly, objectives and goals are defined as a result of the planning process for different periods and levels of management that ensure the execution of the programs and projects conceived, where specific priorities derived from local demands are included. Fourthly, the stakeholders in the outcome evaluation process are considered, which influence the way of thinking and acting of managers and officials, based on the autonomous nature of the territory. Fifthly, the regulatory framework associated with the evaluation process is recognized, expressed in norms and procedures that constitute the legal basis for the assessment of management carried out in these organs.

Part 2. Interaction of components for the result evaluation

From the model inputs, the evaluation process will be initiated, based on the interaction of the main components. The dimensions that characterize an effective management (strategic: achievement of strategic objectives and goals based on the knowledge of the needs of society for decision making and assuming processes of economic-social transformation, at different time periods; economic: use of resources with efficiency in terms of results, satisfaction of needs and economic-social development; operational: work systems in the management of organizational processes to achieve objectives and goals; and social: reflects the effects or changes produced with the delivery of products and (or) services offered. The variables that conceptually define effectiveness (real knowledge of society's needs and dissatisfactions, response capacity with available material and financial resources, objectives set in planning, and changes produced that impact the community). Both require an alignment to reveal the degree of interaction in the same scenario and the variables structure the indicators

In this part of the model, the system of indicators is conformed (Table 2) that assures the evaluation process, centered in the efficiency, effectiveness and the changes produced by the set of programs and projects, contributing quantitative and qualitative information of the result obtained in each dimension that represent sub-indexes. In the study conducted, a set of indicators was evaluated and proposed, which after a validation process by experts, managers and officials, proved to have the qualities, easy understanding, reliability in calculation, relevance and low cost, meet the requirements of comparability, independence and accessibility, in conjunction with other criteria issued, consistent with the category "very relevant" as the maximum value in the Likert scale used.

Table 2 - Indicators derived from alignment

Id	Indicators	Sub-indexes
1	Predicting complex social situations	Strategic (Sbest)
2	Efficient use of territorial agreements and regulations	
3	Strategic projection of local plans, programs and projects (PPP)	
4	Side effects of plans, programs, local projects	
5	List of answers or solutions with the total of approaches and needs	Economic (Sbeco)
6	Percentage of material and financial resources that provide an answer or solution to prioritized approaches and needs that require it	
7	Percentage of objectives in the operational planning on plans, programs and projects that give answer or solutions to approaches and needs to different terms in prioritized actions	
8	Income and expenditure balance	Operating (Sbope)
9	Amount of information on topics, sectors and population segments	
10	Percentage of use of strategies in the management of solutions or responses to approaches and needs in a year	

11	Fulfillment of the planned for the physical and financial advance of plans, programs, projects and goals prioritized in operational plans	
12	Beneficiaries with the implementation of the plan	
13	Citizen participation in proposals for solutions and responses to the approaches and needs of the population	Social (Sbsoc)
14	Percentage of use of local potentialities in the solution or response to approaches and needs of the population	
15	Contribution of local potentialities to plans, programs and projects	
16	Changes produced by public management in local government	

Source: Own elaboration

The information system is part of the whole evaluation cycle, collecting, processing data and storing information for the evaluation of the effect on the internal environment, through the actions projected from the real state of the OLPP and on the external environment, through the effect on society of the actions carried out. Both flows are essential for the orientation of the management and the feedback that follows up the effective decision making with a view to improving the result.

From a practical point of view, the study identified critical areas that provide relevant information (knowledge of approaches and needs of the population; responses and solutions given), but showed a lack of data required by the indicators, bringing with it the need for adaptation and incorporation of other data to the flow of information.

The right data that provides information has to do with:

- total of approaches in the set of sources in the period to be evaluated
- number of problems identified among the approaches and needs
- number of decisions aimed at giving partial or final answers to identified problems
- number of approved plans, programs and projects (PPPs)
- number of development-oriented PPPs and responses to approaches
- total number of approaches and needs received by all established sources and how many have had answers or solutions
- number of prioritized approaches of the total that do not receive material and financial support per year
- percentage of income from property tax in response to approaches and needs per year objectives of the total, planned on plans, programs and projects that give answers or solutions to approaches and needs for months in a year (how many approaches and needs are collected by each)
- income and expenses of the PPPs according to period amortization of the execution expenses
- number of strategies applied to achieve the response or solution to approaches and needs, which ones are more effective
- number of non-prioritized approaches that do not receive material and financial support per year

- number of PPPs, objectives of each, approaches or needs that meet expected results, changes or transformation, who are the beneficiaries
- number of proposals for solutions made by the population itself when faced with proposals, how many of them are implemented
- portfolio of existing endogenous potentialities in the productive and service areas, their use in PPPs for the solution or response to approaches, population needs and socioeconomic development
- contribution of the endogenous potentialities participating in the PPPs to the satisfaction of the population's needs

The new data incorporated is associated with: number of events or complex situations due to various causes that occur in non-prioritized approaches; total of areas (economic, productive, socio-cultural, natural and institutional) that have received benefits due to the impact or results of one or several PPPs; topics more or less treated in the register, in the approaches; sectors for which no information is recorded in the set of proposals received by the functional organizational structures; population segments for which no information is recorded in the proposals; percentage established in the operational plans for the physical and financial advancement of the PPPs and prioritized goals; and changes produced by local public management in the environments (internal and external).

The managers and officials consulted in three provinces and municipalities, as part of the study conducted, appreciated the relevance, feasibility and possibilities of the information system for adjusting to current information demands and the information needs incorporated, which do not require additional costs to the current ones.

Part 3. Calculation of indicators and measurement of effectiveness

The calculation of the indicators (Id) has its origin in the theoretical foundations that support its proposal and the information necessary for the integral evaluation of the result, with a quantitative percentage behavior of the value in the modeled expressions and qualitative by the categories conceived in the intervals of the range suggested by the experts (Table 3).

The ability to forecast complex social situations (Id1), requires knowledge of produced situations (Hc) and their relationship with non-prioritized approaches (Pnp).

$$C_{pre} = \left[1 - \left(\frac{Hc}{Pnp} \right) \right] \cdot 100$$

The efficient fulfillment of agreements and territorial normative dispositions (Id2), establishes the degree of efficiency of the directive levels in the relation amount of decisions taken (Despi), with respect to the amount of problems identified in the approaches and needs (Pipn). A greater number of decisions on the same problem generates time consumption, management events and resource expenses, which reveals the percentage of efficiency of government action until its solution.

$$Cead = \frac{\sum Despi}{\sum Pipn} \cdot 100$$

The strategic projection of local plans, programs and projects (Id3), reviews among the existing amount (PPPt), those that are oriented to development needs and/or solution of community approaches (PPPdp). In the strategic projections for different time periods, the attention to the issues with the highest impact on the life of the population and the effect on the satisfaction of needs, priorities derived from the economic and social situation of the territory, is reflected.

$$Pppe = \frac{PPP dp}{PPP t} \cdot 100$$

The secondary effects of local plans, programs, projects (Id4), determine the extent to which the total of local plans, programs and projects (PPPt) achieve effects in other areas (Cef) different from the object of action, within the set defined in the territory.

$$Efese = \left[10 - \left(\frac{\sum Cef}{\sum PPPt} \right) \right] \cdot 10$$

The relation of answers or solutions with the total of approaches and needs (Id5), measures the correspondence of the answers and/or solutions (Crs) with the amount of known approaches and needs (Cpn).

$$Rspn = \frac{Crs}{Cpn} \cdot 100$$

The percentage of material and financial resources (Id6), which provide an answer or solution to prioritized approaches and needs (Rspn), is determined by the use of material resources by plan of the economy (Rmeco), financial resources by budget (Rfpre) and those included by the territorial contribution (Rftri).

$$Prmf = \left[\frac{Rmeco + Rfpre + Rftri}{Rspn} \cdot \frac{1}{3} \right] \cdot 100$$

The percentage of objectives in operational planning on plans, programs and projects that provide answers or solutions to approaches and needs at different times in prioritized actions (Id7), reveals to what extent operational planning (Obpope) shows the weight of decisions in the execution of strategic projections (Obrspn).

$$Poop = \frac{Obrspn}{Obpope} .100$$

The income and expense balance (Id8) compares the income generated by local plans, programs and projects (IgPl, IgPr, IgPy) with the expenses that cause their execution (GtPl, GtPr, GtPy).

$$Bensa = \frac{\sum IgPl, IgPr, IgPy}{\sum GtPl, GtPr, GtPy} .10$$

The amount of information on themes, sectors and population segments (Id9) shows the information in the functional structures within the set of approaches and needs of the population on themes: registered (Tereg) and defined (Tedef); sectors: registered (Sereg) and defined (Sedef); and segments: registered (Sgreg) and defined (Sgdef).

$$Cinfo = \left[\frac{\left(\frac{Tereg}{Tedef} + \frac{Sereg}{Sedef} + \frac{Sgreg}{Sgdef} \right)}{3} \right] .100$$

The percentage of use of strategies in the management of solutions or responses to approaches and needs in a year (Id10), defines and stimulates effective organizational strategies (Estoe) in the administrative management within the set of those applied (Estoa). The objective is to define and stimulate the application of strategies with better results within the known or experienced set in evaluation periods such as: follow-up of responsible entities, alternatives to approaches without resource support, combined solution of accumulated approaches, measurement of contributions of the entities, decentralization of structures.

$$Ceto = \frac{Estoe}{Estoa} .100$$

The fulfillment of the planned for the physical and financial advance of plans, programs, projects and goals prioritized in operational plans (Id11), establishes a relationship between what is executed (Peaff) and what is planned (Ppaff).

$$Caff = \frac{Peaff}{Ppaff} .100$$

The beneficiaries, with the implementation of what was planned (Id12), show the amount obtained by each plan (Pl), program (Pg) and project (Py), with respect to the total population to be considered.

$$\text{Bene} = \frac{\sum_{j=1}^n \text{beneficiarios}(Pl, Pg, Py)_j}{\text{Total población a considerar}} \cdot 100$$

Citizen participation in proposals for solutions and responses to the proposals and needs of the population (Id13) shows how much citizens are involved in decision making and the strengthening of social responsibility.

$$\text{Pasr} = \frac{\text{Propuestas ciudadanas en las soluciones y respuestas}}{\text{Planteamientos y necesidades}} \cdot 100$$

The percentage of use of local potential in the solution or response to approaches and needs of the population (Id14) identifies the degree of use of the productive potential and services identified.

$$\text{Polo} = \frac{\text{Potencialidades empleadas}}{\text{Potencialidades identificadas}} \cdot 100$$

The contribution of local potentialities to plans, programs and projects (PPP) (Id15) knows what they contribute to the effectiveness of government action as a whole. The objective is to know and stimulate the contribution of local potentialities to productive and service activities.

$$\text{Apolo} = \frac{\text{Potencialidades en PPP}}{\text{Total PPP}} \cdot 100$$

The changes produced by local public management (Id16) are evaluated by the population and public servants through the effects perceived with the socioeconomic and productive transformation, considered excellent (E), good (B), fair (R), non-existent (NE) and bad (M), among a number of respondents (N). Public value is added based on individual and collective perceptions interpreted in terms of satisfaction, so it is necessary to determine the changes that influence this perception in order to guide the efforts and objectives of government action.

$$\text{Capro} = \frac{\sum E(3) + \sum B(2) + \sum R(1) + \sum NE(0) + \sum M(-1)}{N}$$

Table 3 - Quantitative and qualitative evaluation according to the position in the intervals

Intervals (%)	Qualitative evaluation categories	
$80 \leq Id \leq 100$	Range of evaluation	High
$60 \leq Id < 80$		Acceptable
$40 \leq Id < 60$		Fair
$Id < 40$		Low

Source: Own elaboration

Derived from the calculation of the indicators (Id), sub-indexes (Sb_{Di}) are structured, composed of the weight of importance (P coefficient) that each indicator adopts from that granted by the experts and the value resulting from its calculation (expression 1). Similarly, the numerical values of the sub-indices and the importance weight of each one ($K_{Sb_{Di}}$ coefficient: $S_{best}=0.34$, $S_{beco}=0.32$, $S_{slope}=0.17$, $S_{soc}=0.16$), granted by the experts to them, by the Kendall concordance coefficient, integrated the components for measuring effectiveness by means of a synthetic index (ISE), as presented in expression (2), which, submitted to the consideration of specialists and officials, reached a favorable weighting in the utility criteria (above 98% of those surveyed).

$$Sb_{Di} = \sum_{j=1}^4 P_j \cdot Id_j \quad \forall Sb \quad (1) \text{ where,}$$

P_j : weight of importance of each indicator j in the dimension i.

Id : value of j indicators in the dimension i.

$$ISE = \sum_{Sb_{Di}=1}^4 K_{Sb_{Di}} \cdot Sb_{Di} \quad (2) \text{ where,}$$

$K_{Sb_{Di}}$: weight coefficient of each sub-index (K_{est} , K_{eco} , K_{ope} , K_{soc}).

Sb_{Di} : sub-index value (S_{best} , S_{beco} , S_{slope} , S_{soc}).

For both sub-indexes and ISE, the measurement range was kept to maintain homogeneity, and for the intervals, an upward narrowing was proposed (suggested by the authors), with the interest of converting them into challenging goals and commitment (Table 4). The reference value, the mean of the results obtained by years due to the lack of previous records and a frequency of half-yearly-annual updating coincides, with the established statistical cycle.

Table 4 - Quantitative and qualitative evaluation of Sb_{Di} and ISE

Intervals (%)	Qualitative evaluation categories	
$90 \leq Sb_{Di} \leq 100$	Range of evaluation	High
$70 \leq Sb_{Di} < 90$		Acceptable
$40 \leq Sb_{Di} < 70$		Fair
$Sb_{Di} < 40$		Low

Source: Own elaboration

Obtaining quantitative and qualitative information, from the measurement of indicators, provides elements for decision making in order to improve local public management. In contrast to previous approaches and proposals, the study recognizes the value of articulating policies that generate innovation, change, and social transformation and of a synthetic index of effectiveness, oriented to promoting an organizational culture for improving public management performance, with lines of action that allow for a comprehensive evaluation. In this way, it is possible to know, explain, and evaluate, in a more objective way, the results derived from the actions of local governments in the care of social welfare and socioeconomic development in a scenario of improvement of the Local Organs of Popular Power.

The integral nature of the essential elements proposed by the model provides an agile, flexible and comprehensive way of measuring management, which makes it a tool for managers and public officials in decision making, aimed at improving their performance in the local environment.

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Authors declare not to have any conflict of interest.

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The authors have participated in the writing of the paper and the analysis of the documents.



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