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Article

Procedure for Integrated Management through Processes of Local Development Projects

Procedimiento para la gestión integrada y por procesos de proyectos de desarrollo local

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ABSTRACT

Aim: To develop a procedure for integrated management through processes of local development projects leading to increased effectiveness.

Methods: The theoretical methods used were analysis and synthesis for information processing, and the historical-logical for project analysis. The empirical methods used were interview and scientific observation to determine the elements with negative impacts on local development project management, and document review to systematize previous studies. Statistics Program for Social Sciences, SPSS 21.0, was used for information processing, and UCINE 6 was used to graph the network.

Main results: a set of managing tools was developed, including diagrams and process sheets. These general indicators are used to measure the outcome of local development projects, whose resulting indexes are utilized to measure the integration level among processes and dimensions, and to evaluate effectiveness. Besides, the procedure (made of four stages), was applied to six local development projects in the municipality of Holguin (province of Holguin), Cuba.

Conclusions: Integrated management through processes of local development projects allowed researchers to offer executives a managing and strategic approach through identification and classification of their economic, socio-cultural, institutional, and environmental dimensions, as well as of the local actors. The applications implemented demonstrate that the procedure applied was the groundwork of local development project management, and that they are viable in practice.
Key words: local development, process management, integration, project

RESUMEN

Objetivo: Desarrollar un procedimiento para la gestión integrada y por procesos de los proyectos de desarrollo local, que contribuya a incrementar su efectividad.
Métodos: Se emplearon como métodos teóricos el análisis y síntesis para procesar la información, y el histórico lógico para el análisis de los proyectos. De los métodos empíricos se utilizó la entrevista y la observación científica, para determinar los elementos que inciden de forma negativa en la gestión de los proyectos de desarrollo local, y la revisión de documentos para sistematizar los estudios precedentes. Para el procesamiento de la información se usó el software Statistics Program for Social Sciences (SPSS) versión 21.0 y el UCINE 6 para graficar la red.
Principales resultados: se diseñó un conjunto de herramientas de gestión, entre ellas, diagramas y fichas de procesos, indicadores generales para medir los resultados de los proyectos de desarrollo local, de los cuales se derivan índices para medir el nivel de integración entre procesos, dimensiones y evaluar la efectividad. Además, se aplicó el procedimiento (conformado por 4 etapas), en seis proyectos de desarrollo local del municipio Holguín, provincia del mismo nombre, Cuba.
Conclusiones: La realización de una gestión integrada y por procesos en los proyectos de desarrollo local, permitió dotar a los directivos de un enfoque gerencial y estratégico, mediante la identificación y clasificación de sus procesos y de la integración en estos, de las dimensiones económica, sociocultural, institucional y medioambiental, y de los actores locales. Las aplicaciones realizadas demuestran que el procedimiento desarrollado constituye una base para la gestión de proyectos de desarrollo local, y que es viable en la práctica.

Palabras clave: desarrollo local; gestión por procesos; integración; proyecto

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INTRODUCTION

The Cuban socioeconomic model update process has an impact on all areas of society as a multidimensional and integrated process, in which different activities and economic and social sectors intervene. The conceptualization of this model states that the economic, social, and environmental sustainability of the country is linked to local development, according to guidelines 17 and 49 (Communist Party of Cuba, 2017). Besides, the guidelines approved in the VI and VII Congress of the Communist Party of Cuba demonstrate the importance assigned to local development projects. They are part of the change produced in the Cuban socioeconomic model, and represent one way of responding to national and local needs, and generating welfare.

In the international arena, several research studies related to local development projects have been done, including Catenazzi (1998) and Silva (2012), who have studied strategies of local development in Argentina and Chile, respectively. Moreover, Malta (2003), deals with local development project management, though he focuses on social development in Honduran communities.

Aparicio (2009) suggests using project-based local development management as a work tool for public administration management, in terms of local and urban development in Villaverde and Usera, two districts of Madrid, Spain. Also, the European Commission for Latin America and the Caribbean (CEPAL), and the Latin American and Caribbean Institute of Economic and Social Planning (ILPES, 2012), proposed a manual to design local development strategies.

In the Cuban experience, related to local development management, authors like R. González (2015), Castillo, and Lazo (2015) are relevant. However, there is little availability of tools used for local development project management, since most of the above-

mentioned authors suggest work on municipal development strategies, which must be implemented by the municipal councils of administration, toward the inclusion of environmental risk management, tourism, territorial and financial planning, gender approach, and business strategies.

The document approved by the Ministry of Economy and Planning (MEP), in place since 2011, known as *Methodology for the Design of Local Development Projects,* includes financial and logistic mechanisms, the objectives of work groups, the proposal to design projects, and the procedure for the operation and administration of funds. However, the document does not include the steps to follow for execution, the management processes are not identified, and the elements to consider for the analysis of results during operation are not established.

The need for local development projects to be effective in keeping with the original objectives should be based on cost-effectiveness, and contribute to the Municipal Administration Council; they must become a priority, though there are limitations in their managing ways. Some of the main insufficiencies are:

- Limited diagnosis of available resources to execute projects, based on the municipal development strategies.
- Little clarity in the objectives, scope, and necessary supplies to execute projects.
- Negative effects during start-up and operation, given by a fragmented association of the main actors.
- Insufficient control of the results from projects, which does not favor regulation.

The analysis of results from surveys to local development project executives, Provincial Offices of Economy and Planning, and the government, the review of reports that contain local development projects in the province of Holguin between 2014 and 2017, among others, led to the conclusion that the possible causal element of the above insufficiencies are the limitations of the main actors (company and project executives), to implement local development project management, since the existing tools are inappropriate for planning, organization, execution, and control.

That way, there is a lack of methodological tools for local development project management that incorporate a managing strategic approach for design and

implementation, the creation of capacities, and the integration of local actors, dimensions and processes. Along with it, both in Cuba and overseas, a theoretical and methodological foundation has been developed toward the advantages of implementing the integrated approach by process, in order to achieve effective management (L. González, 2017; Llanes, and Lorenzo, 2017; Ortiz, 2014). This study considers the introduction of these approaches of local development project management pertinent and novel.

Therefore, the aim of this research is to develop a procedure for integrated management through processes of local development projects leading to increased effectiveness.

DEVELOPMENT

Theoretical-methodological background of local development project management

The concept of local development stems from the concept of development. Based on approaches like the industrial districts, the decentralized model of industrialization, or the model of technological clusters originated in the concentration/diffusion models, introduce the notion of location in the theory of development (Vázquez, 1993). In the 1980s, local development became a development strategy of European regions and locations where, for the first time, the local governments intervened in development and economic growth processes.

This research demands an analysis of this aspect, as a necessary step. It included the compilation of a group of definitions provided by different authors (Vázquez, 1993; González, 2015). The main variables of each definition were identified, according to the definitions issued from 2003 on, to conduct analysis under the current conditions. These variables are growth, improvement, economic, political, development, integrated /integration, transformation, socio-cultural, endogenous, environmental, actors/agents, territory, exogenous, sustainability, dimensions, institutional, decentralization, participation, potentialities, capacities, and progress.

A binary matrix was built depending on the presence or not of the variables in each definition. SPSS was used to visualize the relationships established among variables through analysis of correlations of distance, using the Jaccard measurement; then it was

processed by UCINET. To build the graph, Net Draw was used, as can be seen in Fig. 1. To deepen in the structure of the grid, a centrality degree analysis was performed. As a result, the center-most variables, the ones with the greatest number of relations with other variables in the grid, and the most commonly represented in the study were, dimensions, development, actors/agents, territory, integrated/integration, socio-cultural, economic, institutional, and environmental.

Based on the centrality analysis performed, the most representative variables revealed that local development may be understood as a way to achieve development of a territory, through the integration of dimensions like socio-cultural, economic, institutional, and environmental, implemented by the actors and agents or development in the location.

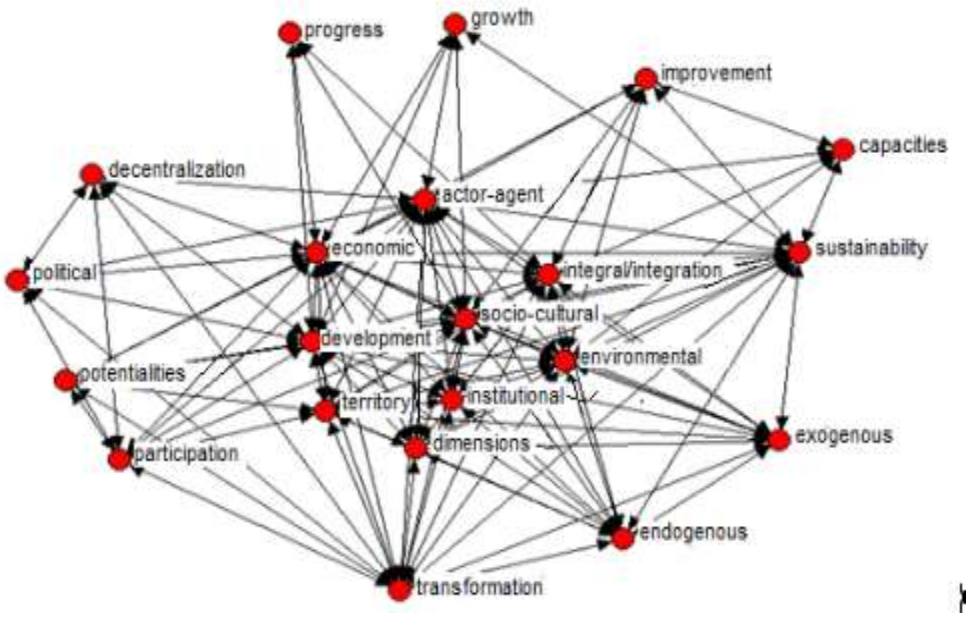

Fig 1. Grid of inter-variable relations

Source: Self-made based on UCINET.

This analysis contributes with a close look at the most commonly dealt with dimensions of local development by the authors cited, and the decisive role of local actors, to achieve local development. Besides, a means to achieve this development may be through the integration of dimensions and actors, due to the importance of their participation in development processes.

A closer look at local development management in this research, sets the concept given by González (2015), as referent, who says that local development management is the implementation of the executive functions (planning, command, and control), given the importance of the management cycle to achieve local development project effectiveness. One of the ways used in Cuba for local development management is the municipal development strategy, through which the local development projects become an essential part of it.

In the particular case of Cuba, the Methodological Indications for the 2020 plan, MEP considers that:

> The local development projects are established as a way to achieve active participation of municipal and provincial administration councils during the implementation of their development strategies through project management, creating an impact on the economic-productive, socio-cultural, natural, and institutional scenarios, that enable proper use of endogenous and exogenous resources by state and non-state actors, to improve the people's quality of life. (Ministry of Economy and Planning [MEP], 2019, p.273)

In the context of this research, it is important to dig in the elements related to local development project management. It goes back to Aparicio (2009), Bergara, and López (2010), Castillo and Lazo (2015), Center of Local and Community Development (2011), Gavilán, Massa, Guezuraga, Bergara, and López (2010), and Malta (2003), among others. There is plenty of literature on project management mainly focused on aspects like social, community, international collaboration, and development of new products. No elaborate concept of local development project management was found, though there are studies and methodologies that deal with these aspects, as steps for project formulation and financial management, but they do not contribute with any elements to managing these projects.

Due to the absence of a concept of local development project management in the bibliography consulted for the Cuban context, based on precedent concepts like local development management, applying the theory of R. González (2015) on local development management into local development project management, and the analysis

made about the center-most variables of the concept of local development. This research considers that local development project management is a process, in which processes should be identified and classified as strategic, operational, and supporting, as strategic processes related to planning and organization. The operational and supporting processes are related to execution and control. Moreover, they have to integrate their processes, the dimensions of local development, because from design to implementation, a project must include economic and environmental aspects, and institutional and sociocultural elements, as well as the actors, who must be represented and articulated in all the stages of the project life cycle.

In recent years, in Cuba, greater relevance has been given to the need of increasing local development projects as a way to achieve socioeconomic development in the locations. However, the expected results are not coming out. The review of reports of the results of local development projects designed by the Provincial Office of Economy and Planning in Holguin, by 2014, 2015, 2016, and 2017, and the participation of the author of this paper in meetings of the provincial group for local development, and tours of several municipalities, have revealed the managing limitations.

The existing projects have problems in the execution, the rationale has no diagnostic basis with the potentialities of endogenous resources, and they do not derive from municipal development strategies. Moreover, feasibility studies have difficulties, there is lack of knowledge by the executives in relation to the steps to follow to make projects work; there is also dispersion and lack of integration among all the actors. Additionally, there are no tools which facilitate regulations of the process to control operating projects and their results.

According to this research, one way to reduce the existing limitations of local development projects may be the implementation of integrated management by process, through which processes and actions in the project can be identified and documented. This would guide executives into proper operation, the accomplishment of objectives, and better yields.

In other words, project effectiveness is related to meeting objectives, according to González, 2002, Gutiérrez, 2007, Mallo, and Merlo, 1995, and Sumanth, 1990, cited by Rojas, Jaimes, and Valencia (2018). In the particular local development project, effectiveness is understood by achieving goals and objectives with efficiency and efficacy.

To increase project effectiveness, resources should be used rationally, and customer satisfaction is required. If the relation between these elements is not effective, the process ought to be controlled through evaluation of indicators, and post-investment analyses, which will help identify improving opportunities. Another fundamental element to increase effectiveness would be process integration, the dimensions of local development, and the internal and external actors.

Procedure for Integrated Management through Processes of Local Development Projects

The rationale of the procedure suggested are found in:

- The theoretical conceptions on local development
- Resolution 187 issued by the Ministry of Finances and Prices (2011)
- Integrated management by process
- System approach

The procedure for integrated management by process of local development projects aims to offer executives the methodological tools to manage projects with increased effectiveness. Below, the stages and steps are explained.

Stage 1. Analysis of the starting conditions

Objective: To diagnose the status of the project where the procedure will be implemented.

Tools: Document review, check list, surveys, and interviews

Step 1.1 Analysis of project status

The following actions are performed to conduct the study of the project and create the starting conditions:

1. To define the life cycle stage of local development projects in which the target project is. After identifying the current life cycle stage of the project, compliance of actions per stage should be evaluated.
2. To define the development line or objective of the project within the municipal development strategy or integrated development plan.
3. To identify the actors involved in the project (internal and external), taking into account their characteristics and specificities.

4. To monitor the opinions of the people, both customers and the community where the project is implemented. To achieve that, surveys are suggested during the generation of ideas stage of the project, as well as for the operational stage, in order to gather information about customer satisfaction. Also, community neighbors should be interviewed.

Step 1.2 Determination of training needs of executives

In this step, simultaneously with the previous step, the training needs of executives are determined. Actions, which contribute to training of project executives, are suggested.

These training actions will be taken through the design of activities conceived according to the diversity of possible modalities, which correspond to the objective of each activity, and their actors. They will deal with basic topics like local development aspects, project management and its role in local development, integrated management by processes, feasibility studies and post-investment actions for local development projects, and the procedure for integrated management by process of local development projects.

Stage 2. Design of tools for local development project management

Objective: To develop tools needed for project management as part of the phases of planning and organization.

Tools: Process maps, diagrams, process cards, indicators, and post-investment analysis.

Step 2.1 Process identification

This step requires work sessions with all the participants, which allow for the design and identification of project processes, and classify them into strategic, operational, and support. Then activities can be planned for every process.

Strategic processes are intended to determine the goals or objectives, policies to follow, and strategies to meet those goals. They must be managed by the directors of the main project entity, or by the director of the project.

These processes are mainly related to planning, which is an anticipation function based on the demands presented by the interested parts in a particular project. The project's goals are set up along with actions, at planning. Besides, the strategic processes related to the organization are designed. It must create a grid of links that ensure, particularly, the integrity of the system run, the most effective organic correlation of its components, and

the coordination and subordination relations among them. The policies to organize the work, and human and material resources, are established within that function.

The strategic processes are designed or identified by the director and his work team, based on the local development project characteristics in which the procedure is being applied, and the objectives set.

The operational processes are intended to implement and evaluate policies and strategies to reach goals or objectives defined in the previous processes, to meet the demands of the interested parts. They must be managed by the ones in charge of services or sub-productions made by the project, with the supervision of the project director.

These processes are linked to execution and control; execution ensures project operation and normal development. Policies and actions established in strategic processes are implemented to achieve the project objectives. Control in these processes embodies production or services, and it is important to control the quality and resources available.

Operational processes are designed or identified considering the main activities for which the project was created, and are offered to the population, either as services or goods.

Back up processes, in turn, are intended to ensure material, human, and financial resources needed for the implementation of the project. They must be managed by the ones in charge of logistics, the economy, and human resources of the project, in coordination with the director.

These processes are linked to execution and control. Execution because they involve the necessary assurance to guarantee inputs and suppliers for startup, as well as the productive or service process, and the selection, training, and incentives to workers. They are linked to control because contracts with suppliers must be protected, as well as economic-financial aspects. Back up processes are designed or identified from the needs of project resources.

Relations and inter-relations take place between these processes and activities. For integration, it is important to identify which processes and activities depend on one another, and must work in integration. This can be attained through the identification of relations and inter-relations between them.

Step 2.2 Design of the process map

Based on processes and activities identified in the previous step, the process map is designed to provide a graphic representation of the relations between them. This step must be run by the director of the project, and the work group that took part in the design or identification of processes in the previous step.

Step 2.3 Design of process diagrams

In each process identified and explained in the previous step, process diagrams are designed. Upon designing the process map, a responsible person is appointed, together with a work group in charge of designing all the diagrams of each process under the supervision of the project director. The diagrams show the operation of each process of local development project management, based on their individual operation, the activities that integrate them, and the relations between them.

The diagram is made from a start symbol, and then, all the related activities of the process are added by order of priority. They are arranged according to the relations between activities, and how they integrate, ending in an End symbol. Fig. 2 illustrates local development through a process diagram.

Step 2.4 Design of process sheets

In this step, the process sheets of local development project management are designed. They will be made by the same work groups that designed the process diagrams. The methodology used appears in the guide for process-based management, suggested by the Andalusian Institute of Technology (Beltrán, Carmona, Carrasco, Rivas, and Tejedor, 2002). Moreover, as a way of achieving the integration of actors, the ones included in each process are selected; they are critical to achieve successful development of activities. The sheets gather all information about the process. It may be diverse, and will be defined by the organization. The format of the sheet is suggested in Table 1.

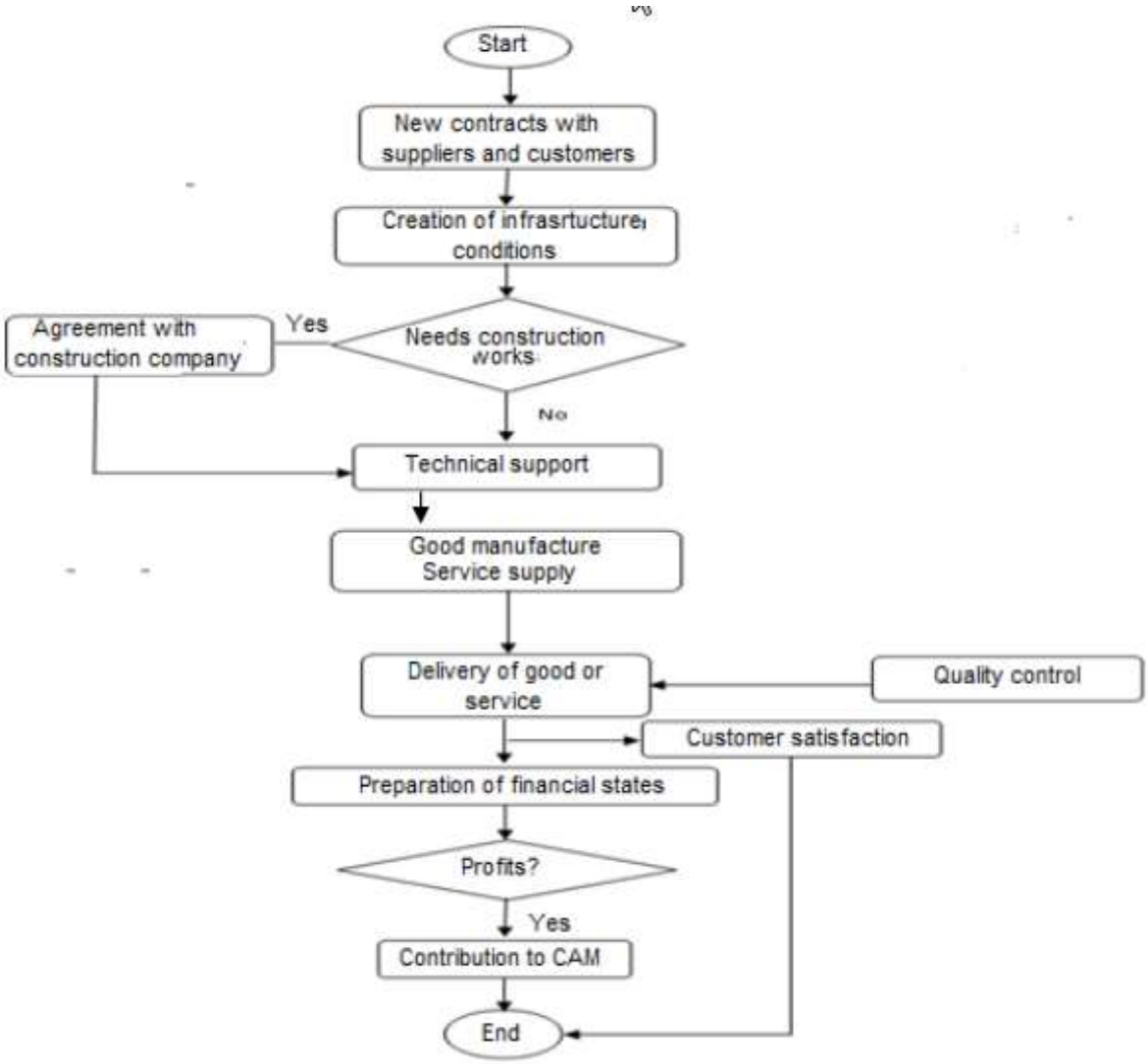

Fig 2. Diagram of the execution process of a local development project

Source: Self-made.

Step 2.5 Design of indicators

A group of general indicators are suggested to achieve integrated management by process, evaluate effectiveness, and measure the results of project operation. These indicators will be complemented with specific indicators that will be designed by the director of the project and his work group, considering the characteristics and specifications of the project to be measured. Measurements will take place in the operational stage of the project life cycle.

Table1. Process sheet

Process	Owner
Mission:	
Scope Starts: Includes: Ends:	
Inputs: Suppliers:	Output: Customers:
Actors integrated in the process:	
Verifications:	Records:
Control variables:	Indicators:

Source: Adapted from Beltrán *et al*. (2002).

The model shown in Table 2 is suggested to characterize the indicators. Following the bibliography review, and after the application of the methodology of expert opinion, 20 general indicators are suggested (Table 3), which can be applied to all project types.

Table 2: Model to characterize indicators and evaluate results

Indicator:				
Objective:				
Classification	Local development dimension			
	Process			
	Efficiency		Efficacy	
Calculation method				
Periodicity				
Source of information				
Reference level	Good		Average	Bad

Source: Sel-made

Table 3: General indications to measure local development project results

Indicator	Process			Dimension				Effectiveness	
	S	O	B	E	EV	SC	I	Efficiency	Efficacy
Accomplishment of objectives	x						x		x
Accomplishment per cent of the income plan	x			x				x	
Accomplishment per cent of planned unit	x			x				x	
Satisfaction per cent of need of resources and means for presentation of goods and services			x	x				x	
Satisfaction per cent of employees			x				x		x
Accomplishment per cent of customer contracts		x		x					x
Accomplishment per cent of production or service plan		x		x				x	
Customer satisfaction per cent	x					x			x
Profit margin			x	x				x	
Contribution to CAM			x	x				x	
Budget execution	x			x				x	
Quality per cent of good or service	x			x					x
Execution per cent of contracts with suppliers			x	x				x	
Input supply per cent			x	x				x	
Per cent of women working on the project			x			x		x	
Per cent of young population working on the project			x			x		x	
Electric power consumption			x		x			x	
Dumping of residual wastes into the environment		x			x				x
Noise pollution		x			x				x
Project satisfaction per cent in the community	x					x			x

Legend: S-strategic, O-operational, B-back up, E-economic, EV-environmental, SC-sociocultural, I-institutional

Source: Self-made.

Indexes were designed as tools to check the level of dimension integration (LDI), and the level of process integration (LPI), adapted from Ortiz (2014). Furthermore, an effectiveness index (EI) was designed to measure the level of effectiveness or the project. The index calculation procedure is shown below:

Level of dimension integration (LDI)

$$NID=\sum_{d=1}^{4} Pd\ Cid \qquad Cid=\frac{\sum_{d=1}^{4} (Id\ E)}{5 \sum Id}$$

Where: Pd: weight or importance level of each dimension[1] (economic, sociocultural, environmental, institutional)

Cid: qualification of the indicators of each dimension[2]

Id: indicator per dimension

E: evaluation of indicators

Level of process integration (LPI)

$$NIP=\sum_{d=1}^{3} Pp\ Cip \qquad Cip=\frac{\sum_{d=1}^{3} (Ip\ E)}{5 \sum Ip}$$

Where: Pp: weight or importance degree of each process type (strategic, operational, back up)

Cip: qualification of indicators of each type of process

Ip: indicator per process type

E: evaluation of indicators

Effectiveness index (EI)

EI = Efficiency index + Efficacy index

$$\text{Efficiency index} = \frac{\sum_{d=1}^{n} (Ci\ E)}{} \qquad \text{Efficacy index} = \frac{\sum_{d=1}^{n} (Ci\ E)}{}$$

Where: Ci: number of efficiency or efficacy indicators

E: evaluation of indicators

A scale suggested in this paper was used to evaluate the indexes, based on previous consulted research (Martinez, 2015; Ortiz, 2014), where high is ≥80%, mid is 50≥79%, and low is <50%.

Stage3. Implementation and control

Objective: Implementation and control of processes and fundamental activities of the project.

Tools: Calculation of indicators, financial states

3.1 Implementation

In this step, the work done in the previous stage is materialized. The process map designs, diagrams, and sheets are implemented in the project. The project director entitles a person responsible of each project, who may be the same person who ran the design of diagrams and cards in the previous step. This person is given the documents, then the related activities and their dates of occurrence, are established. Besides, the required human, material, and financial resources are defined.

Step3.2. Measurement of indicators

The measurement of indicators and indexes from the previous stage is suggested. The project director and his work team are in charge. As mentioned above, the indicators will be measured when the project is in the operational stage of its life cycle, depending on the periodicity set for each. An annual report with the results of all the indicators and indexes is recommended. This is a cyclical step, and the results may be compared on a yearly basis to verify the delay in the results achieved, and increased effectiveness.

Stage4. Improvement

Objective: To design objectives and improvement actions to increase project effectiveness.

Tools: Action plans

Step 4.1 Definition of objectives of improvement

The process is regulated according to the results of indicators and indexes. In that direction, improvement objectives are defined, and corrections are made or processes are updated according to the results of monitoring. These improvement objectives may be directed to the internal or external sides of the project, in order to increase the effectiveness of the project, reduce, and eliminate insufficiencies that lead to fragmented operations. As result, greater integration of processes, dimensions, and actors can be achieved.

Step 4.2 Design of improvement actions

After defining the objectives, the improvement actions are designed for further implementation. It is presented according to the indicators evaluated as bad, and the aspects that lack the necessary integration as a tool to achieve greater project integration and effectiveness. In this plan of action, the possible actions, person in charge, deadlines, and resources, are compiled.

Step 4.3 Follow up

Follow up of improvement objectives and actions suggested in the previous stages This is done through accountability reports made by the personnel in charge of improvement actions and the control of completion within the set deadline. Also, the improvement objectives are checked in meetings with project workers and the board of directors of the proprietor company. Customers are interviewed to gather information about the levels of satisfaction, and check if the improvement actions have produced advances.

CONCLUSIONS

Local development project management has gained broader relevance in Cuba. In recent years, project implementation has tended to increase; however, the desired results have not been achieved. It evidences the existence of flaws in terms of theoretical approaches on management. Methodologically, the utilization of tools directed to local development project management is faulty, since the existing ones are not appropriate to achieve effectiveness.

The procedure developed for integrated management by process of local development projects comprises four stages, in which a set of tools are suggested for the implementation of the integrated and process approach. Processes are identified and documented; then they integrate to dimensions and actors. A control is made by means of the indicators and indexes, and an improvement plan is made.

Integrated management by process for local development projects provided the executives with a managerial and strategic approach, through the identification and classification of processes, and the integration of processes and the economic, sociocultural, institutional, and environmental dimensions, as well as the local actors, from the very design of the project.

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Conflicts of interest and conflict of ethics statement

The authors declare that this manuscript is original, and it has not been submitted to another journal. The authors are responsible for the contents of this article, adding that it contains no plagiarism, conflicts of interest or conflicts of ethics.

Author contribution statement

Rosa Mercedes Almaguer Torres: Theoretical rationale, development of the procedure and tools for local development project management.

Marisol Pérez Campaña: Research methodology, redaction of the conclusions.

Luis Orlando Aguilera García: Review of the whole content, redaction of the manuscript.

NOTES

[1]The methodology of opinion of experts was suggested to determine the degree of importance of dimensions; Kendall's Concordance Method was used for processing

[2]The Likert scale (Good-5, Average-3, Bad-1) assumed from research done by Martinez, 2015 and Ortiz, 2014. was used to qualify each indicator