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## MATURITY MODEL APPLIED TO THE ORGANIZATIONAL CONTEXT OF PROJECT MANAGEMENT FOR THE MAYOR'S OFFICE OF CHINACOTA-COLOMBIA

**Mario Andres Piña Ararat**

Universidad Internacional Iberoamericana (Colombia)

[marioand2702@gmail.com](mailto:marioand2702@gmail.com) - <https://orcid.org/0000-0001-7068-1831>

**José Antonio Bazurto Roldán**

Universidad Internacional Iberoamericana (Mexico)

[jose.bazurto@unini.org](mailto:jose.bazurto@unini.org) - <https://orcid.org/0000-0003-2840-5651>

**Summary.** The research was based on the Chinacota-Colombia Mayor's Office Public Sector Project Management Maturity Model. Its objective was to identify the practices applied by the organization in the maturity of its processes; applying the Maturity Model, the capabilities and performance of the members of the project management area were evaluated. For the development of the work, projective research, a non-experimental and cross-sectional field design, a mixed approach, observation, SWOT analysis, survey and literature review were used; SPSS was used to process the information and descriptive and inferential statistics were applied for the analysis and treatment of the results. The theoretical approach provided the basis for the OPM3 Maturity Model for Project Management in the organization; in addition, the legal framework and standards of the Public Investment Project Bank in Colombia were analyzed. In conclusion, the resulting degree of maturity was 24.99% (low) related to knowledge, the internal-external factors show problems of inaccurate knowledge within the project area, there is a high turnover of its employees, there are not enough resources for its management; the practice of projects shows lack of definition and outdated maturity in its management. Also, it was detected that all practices associated with risk management and procurement have excessive bureaucracy, in the standardization processes there is a high degree of compliance in the management of scope, time, integration and risk.

**Key words:** Project Management; Maturity Model; Public Investment; Project Bank; Continuous Improvement.

## **MODELO DE MADUREZ APLICADO AL CONTEXTO ORGANIZACIONAL DE LA GESTIÓN DE PROYECTOS PARA LA ALCALDÍA DE CHINACOTA-COLOMBIA**

**Resumen.** La investigación se basó en el Modelo de madurez para la gestión de proyectos del sector público de la Alcaldía de Chinácota-Colombia. Su objetivo fue identificar las prácticas aplicadas por la organización en la madurez de sus procesos; aplicando el Modelo de madurez, se evaluó las capacidades y desempeño de los integrantes del área de gestión de proyectos. Para el desarrollo del trabajo se aplicó la investigación proyectiva, un diseño de campo No Experimental y Transversal, se empleó un enfoque mixto, la observación, el análisis FODA, la encuesta y la revisión bibliográfica; para el procesamiento de la información se empleó el SPSS y se aplicó la estadística descriptiva e inferencial para el análisis y tratamiento de los resultados. El enfoque teórico permitió fundamentar el Modelo de Madurez OPM3 para la Gestión de Proyectos en la organización; además, se analizó el marco legal y normas del Banco de proyectos de la inversión pública en Colombia. En conclusión, el grado de madurez resultante fue del 24,99% (bajo) relacionado al conocimiento, los factores internos-externos muestran problemas de conocimientos imprecisos dentro del área de proyectos, existe alta rotación de sus funcionarios, no se cuenta con suficientes recursos para su gestión; la práctica de proyectos evidencia indefinición y desactualización de la madurez en su gestión. También, se detectó que todas las prácticas asociadas a la gestión de riesgo y adquisiciones tienen exceso de burocracia, en los procesos de estandarización tienen alto grado de cumplimiento en la gestión del alcance, tiempo, integración y riesgo.

**Palabras clave:** Gestión de Proyectos; Modelo de Madurez; Inversión Pública; Banco de Proyectos; Mejora continua.

### **Introduction**

In the Mayor's Office of Chinácota, its Development Plan is executed, based on seven strategic lines to meet the needs of its 16,021 inhabitants (DANE, 2018). Welfare is achieved by executing projects planned in the fiscal year; however, the results have not had a positive perception by the inhabitants, nor the achievement of the strategic objectives in the management of projects of the Institution; in contrast to the developed plan, there is no evidence of improvements in good practices in project management, hence the expected results in time, scope and costs, among others are not sufficient, also, it is worth mentioning that the difficulties caused by the Pandemic COVID 19, has led to difficult changes for the development of projects in their different phases.

Likewise, since there is no structured project office, there is no evidence of systematized records or solutions to the main gaps in project management; consequently, there are no good practices in the management of methodologies in the public sector in the case study.

The main cause of this conflict is uncertainty within the institution, insufficient knowledge, scarce resources, high turnover of civil servants and inappropriate political impositions, which consider the project field as bureaucratic units that increase the budget.

The research was developed to establish an approach to the case study, from the analysis of the relevance of the current situation of the municipal administration in the project management processes, culminating in a projective research.

The research based the study on the substantive theoretical framework of the Project Management Maturity Model. A substantial characterization of the Maturity Model for project management in the public sector was carried out, emphasizing two key aspects. The first focused on the Maturity Model for project management in the public sector and the second

referenced important concepts, as well as developed the state of the art related to scientific articles published by other authors, and publications generated by institutions that have addressed the subject under study.

Finally, a summary approach of the knowledge that allowed to base the conclusions and results obtained in the study on the Maturity Model for project management in the public sector based on the principles and standards is shown.

Claros (2015, p. 8) defines the project management maturity model as a structured set of elements (best practices, measurement tools, analysis criteria, etc.) that allows identifying the installed capabilities in project management in the organization, comparing them with standards, identifying gaps or weaknesses and establishing continuous improvement processes.

On the other hand, the Project Management Maturity models focus on the analysis and degree of maturity of the processes involved in the development of a project (FUNIBER, n.d., p.156).

In addition, FUNIBER (n.d., p. 157-158), states that this model was created by the Project Management Institute (PMI), and defines organizational project management in terms of processes; for example:

- Strategic planning process.
- Project upload process.
- Project prioritization process.
- Project planning and portfolio management process.
- Individual project management process.
- Environment management process.

The Organizational Project Management Maturity Model (OPM3) is a project management capability maturity model for organizations, which allows you to evaluate the level of project management maturity of your organization according to best practices and to outline an improvement plan to achieve a project management culture in the organization and a return on investment. The OPM3 model is composed of a series of best practices that will provide great value to your organization (PPMC Consultores Internacionales Ltda., n.d.).

Regarding the structure of the OPM3 model, Bonilla & Suarez (2017), mention that OPM3 helps organizations to measure and develop their skills for the delivery of successful and consistent projects, collaborating with the achievement of their goals, improving their overall effectiveness, this improvement process includes stages to standardize, measure, control and improve; further details see its dimensions in Figure 1.



Figure 1. The OPM3 standard - Dimensions

Note: Source: Organizational Project Maturity Model (2003, p. 19).

As for the OPM3 model cycle, according to Acevedo et al. (2014, p. 31-32), the cycles of the OPM3 model are divided into:

- Knowledge: At this stage, the content of the model, its development and familiarization with project management must be known, and it also includes a database of best practices.
- Valuation: Initially, the best practices that apply in the organization are assessed, the state of maturity according to the model and the specific capabilities of each best practice of the organization are investigated.
- Improvement: The basis for an improvement plan to increase the maturity of the organization is acquired. It evaluates the organization's existing and non-existing components, allowing the development of a plan that replaces the primary needs of project management.
- Repetition: In this cycle it is examined whether to return to cycle 2 and 3 and thus re-evaluate the state of organizational maturity or simply return to the improvement step so that best practices that have not been considered are evaluated.

For Acevedo et al. (2014, p.32), best practices, capabilities, results and performance indicators, OPM3 associates organizational maturity in project management through best practices. A best practice is an industry-recognized best way to achieve an objective. For project management at the organizational level, it includes the ability to execute predictable, consistent and successful projects, always within the framework of the organization's strategies. Implementing best practices increases the likelihood of achieving objectives.

Likewise, Acevedo et al. (2014, p. 34), mention, that the adoption of OPM3 best practices, capabilities, or results can enable an organization:

- Provide more effective information to support project management measures.
- Accelerate organizational success and minimize unnecessary risk through the use of proven best practices.
- Stimulate the identification and selection of projects that support the implementation of the strategy.

- Increase understanding and transparency of project portfolio costs, risks and benefits, enabling management decision making.
- Certify that project/portfolio management includes the investment mix that supports the execution of strategies and risk tolerance.
- Perceive, analyze and respond to incremental changes within the organization, or changes precipitated by external factors such as competition or regulatory requirements.
- Reduce the risk of high impact failures at the project, program or portfolio level.

Instead, capabilities and best practices are associated with three (3) types of domains:

- Project or Project Management Domain
- Program Domain or Program Management
- Proficiency in Portfolio or Portfolio Management.

According to Acevedo et al (2014, p.34), the above are related to each group of processes given by the PMBOK and are linked to each other through information flows.

On the other hand, according to the DNP (National Planning Department) (2016, p. 9), through the Guidance Booklet Implementation and Management of Territorial Program and Project Banks, establishes that the legal framework governing Program and Project Banks is based on five key criteria in the public investment cycle: (i) planning as a support for public investment; (ii) planning tools; (iii) monitoring and evaluation of public investment; (iv) integration of planning and the budget system; and (v) transparency and citizen participation; base criteria for the creation and implementation of the Territorial Program and Project Banks and are configured in the legal recital part of the administrative act creating the Bank.

## **Method**

For the development of this work, projective research was used through the development of a proposal, through which we sought to solve the research problem identified and posed in a practical way, trying to respond through assumptions based on the initial information.

On the other hand, a non-experimental and cross-sectional field research design was applied, with a mixed approach (quantitative-qualitative).

With the mixed approach applied, it was possible to obtain specific information that helped in the valid formulation of the conclusions, the purpose of which was to find the coherent relationships of the study variables.

Deduction and comparison were used as analysis techniques, the results of which made it possible to infer the answers to the questions Why and How, through the observation of the municipal administration's philosophy and the bank of current projects on the platform; a SWOT analysis was also applied to the municipal administration and the survey model applied was the OPM3.

An analysis was also made of the bank of current projects in the virtual platform of the Mayor's Office of Chinácota.

SPSS was used to process the information and descriptive and inferential statistics were applied for the analysis and treatment of the results.

The following steps were taken to analyze the results:

- Determine the unit of analysis.

- Codify the units (assignment of categories).
- Collect data.
- Review data (reading and observation).
- Organize and tabulate data.
- Analyze and discuss results.
- Generate conclusions and/or explanations.

Information was collected through the SWOT analysis, which allowed adapting the appropriate OPM3 type survey, in its different areas of knowledge, to determine the performance of the project officers.

The development of the study allowed identifying the variables of the problem, such as the lack of efforts to improve some management practices, programs and project portfolios, not being able to determine if they are delivering the expected results in time, scope and costs. Likewise, in the absence of a structured project office, the main gaps in project management and performance cannot be found and solved, which leads to the lack of clear processes in planning, budget structure and execution; the organization has limited itself to executing public administration guidelines, without further improving its management levels.

Based on the methodological design applied, the type of study was developed and applied to a universe and sampling unit, using validated instruments to collect data and analyze the results of the information and data collected.

In addition, the research had a conceptual baseline, it started as descriptive and ended as an explanatory research; it was descriptive because it was estimated to characterize the vision, mission and organizational structure of the Chinácota mayor's office; SWOT analysis, which allowed adapting the OPM3 survey form, in its different areas of knowledge.

The instruments were applied in the areas of knowledge: Time, Scope, Quality, Integration, Procurement, Communications, Costs, Stakeholders, Human Resources and Risks.

And with the categories of variables, the explanatory technique was applied because the effects and possible consequences related to the identified problem were determined in order to determine the impacts of the lack of efforts within the municipal administration to improve some practices in the administration, programs and project portfolios; ~~also~~, since there is no structured project office, it is not possible to solve the gaps in project management and performance, leading to the lack of definition of clear processes in planning, budget structure and execution; only the organization has limited itself to execute the guidelines of the public administration in project management, without worrying about improving its management levels.

Official arrangements were made with the municipal administration to access the information and to apply the Maturity Model in the organizational context of project management, and the authorization to carry out the study and meet the objectives set out in this research; the secretary of planning was the key informant in the information gathering process.

Once the information was collected, it was classified, the SWOT was immediately applied to the municipal administration and the OPM3 survey in its different areas of knowledge, the analysis of the Philosophy of the Mayor's Office and a description of the Project Bank; bibliographic information was also reviewed to support the study.

For the description and analysis of the results, descriptive statistics and graphic representation were applied, and the results obtained according to the study variables and categories were shown in tables; this representation made it possible to analyze the data with a mixed approach.

In addition, it is specified that the correlations of causality are factors that originate the central problem identified and that through inferential statistics the general conclusions of the research were determined for the universe and sample unit case of study; also, the degree of reliability and significance of the results obtained, were initiated with formal interviews by applying a pilot instrument to the municipal administration officials. Subsequently, the degree of agreement between a group of items (K) and a group of characteristics (n) was measured, resulting in ordinal responses. In addition, the survey instrument was validated in terms of content (applying Kendall's concordance coefficient), reliability (used to measure internal consistency by calculating Cronbach's Alpha coefficient) and construct (referring to the correlation of the total domain). Also, a validation instrument was determined for the items-dominance, clarity, impartiality or biases and observations framed in the scenarios of concordance and non-concordance of criteria. In terms of parameters, the correspondence showed representative technical quality by applying appropriate language. In general, the survey instrument was validated in its content; the factor index was used to evaluate the items of the instrument in order to establish their correlation, achieving the reliability of consistent and coherent results; a capture index greater than 0.7 was obtained with a high relationship between the items of the instrument. On the other hand, the feasibility of performing a factorial analysis was determined; and the validity of the construct had characteristics of valid scientific utility in the design of the instrument with a previously designed pattern that allowed measuring the variables that were sought to be measured, this allowed explaining the maximum information implicit in the data, and in its significance evidenced a remarkable correlation. In conclusion, the validation of the instrument was based on the reliability, content and construct parameters, factors that were favorable, the results were validated and therefore it was feasible to apply to the selected sample unit.

## **Results**

The results obtained allowed enriching, modifying and/or perfecting the scientific and empirical theory of this research, with the contribution of knowledge about the object of study and the research methods applied.

In practice, the science and the contribution of the information treatment allowed to transmit a better approach to the results obtained and of great utility, hence the socialization of the results; it was also important to show a summary of the construction of knowledge on the project research for the topic and case study raised on the Maturity Model for the management of projects in the public sector in the Municipality of Chinácota.

### ***OPM3 model application (Municipality of Chinácota - Case Study)***

Prior to the results obtained, the philosophy of the Mayor's Office of Chinácota (Mission and Vision) is shown in Table 1 and Figure 2 shows the organization chart of the municipal administration, while Table 3 details the Maturity Process Flow of the Mayor's Office of Chinácota-Colombia.

Table 1  
Current philosophy of the Mayor's Office of Chinácota

Mission	Vision
Improve the quality of life of the people of Chinacot, through the development and implementation of projects that tend to solve the problems of education, health and housing, and the realization of infrastructure works (roads and services, especially) that serve to attract private investment. With the consequent generation of employment for the population.	To turn Chinácota into a tourist destination at the level of the best in the country, attracting visitors from all over the country and abroad, and to position the municipality as the first in its category by 2023.

Note: Source: Chinacota Mayor's Office (2020). <http://www.chinacota-nortedesantander.gov.co/alcaldia/mision-y-vision>



Figure 2. Chinácota Mayor's Office Organizational Chart

Note: Source: Chinacota Mayor's Office (2020). <http://www.chinacotanortedesantander.gov.co/alcaldia/organigrama>.

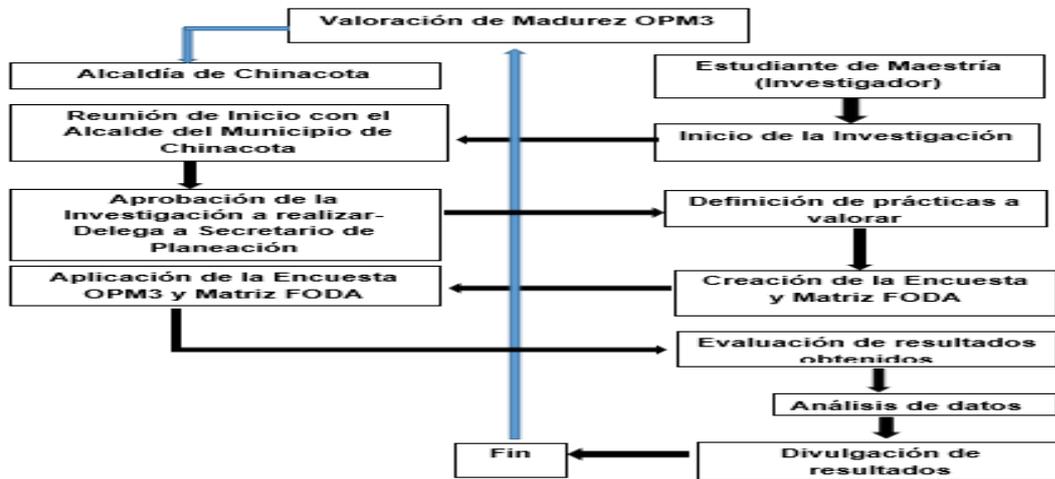


Figure 3. Maturity process flow of the Chinacota-Colombia Mayor's Office

The results of the SWOT analysis are shown in Table 2, which shows all the Strengths, Weaknesses, Opportunities and Threats of the internal and external context in which the organization operates.

Table 2

SWOT Matrix - Projects Area of the Mayor's Office of Chinacota

Aspects	Favorable Strengths	Unfavorable Weaknesses
Internal Analysis	<ol style="list-style-type: none"> <li>1. It has a legalized administrative structure.</li> <li>2. Continuous learning and updating of new trends in project management.</li> <li>3. Sufficient personnel.</li> </ol>	<ol style="list-style-type: none"> <li>1. Incomplete administrative structure.</li> <li>2. Insufficient resources for its operation.</li> <li>3. Document management (limited archiving and no technological automation)</li> <li>4. Apathy in processes of continuous improvement of projects improvement processes.</li> <li>5. Limited schedule due to project time availability.</li> </ol>
External Analysis	<p>Opportunities</p> <ol style="list-style-type: none"> <li>1. Population growth.</li> <li>2. New EOT (Territorial Organization Scheme).</li> <li>3. New planning tools.</li> <li>4. Generate expectations in project maturity.</li> </ol>	<p>Threats.</p> <ol style="list-style-type: none"> <li>1. High demand for public resources due to population growth.</li> <li>2. Corruption.</li> <li>3. The COVID 19 pandemic</li> <li>4. Public order.</li> <li>5. Resistance to change due to new directions in project management.</li> </ol>

In the research only the organizational maturity in the project domain was evaluated, for the effect 182 questions were taken in its different areas of knowledge and processes; specifically, for the variables constructive processes, a weighted valuation was applied to select in an objective way the degree of valuation of the indicators, and to be able to determine the areas of knowledge to the case study.

Table 3 and Figure 3 below show the results of the construction processes variable. The total relation of the number of processes of the different areas of knowledge object of the investigation, it was possible to establish that the project management in the municipal administration, only within its development plan is governed to comply with the requirements

demanded by the public administration in the projects, within its Development Plan (partial compliance) of 100%.

Table 3  
Relationship of the number of processes of the areas of knowledge

Type of Management	Process group total	Percentage of application (%)
Time Management	27	14,84%
Scope Management	23	12,64%
Quality Management	11	6,04%
Integration Management	23	12,64%
Procurement Management	16	8,79%
Communication Management	16	8,79%
Cost Management	16	8,79%
Stakeholder Management	16	8,79%
Human Resources Management	15	8,24%
Risk Management	19	10,44%
TOTAL	182	100%

It can be seen in Table 4, that in Time Management its application corresponded to 14.84% and in Quality Management it was 6.04%, corresponding to the maximum and minimum applied when relating them to the groups of processes in accordance with the types of management.

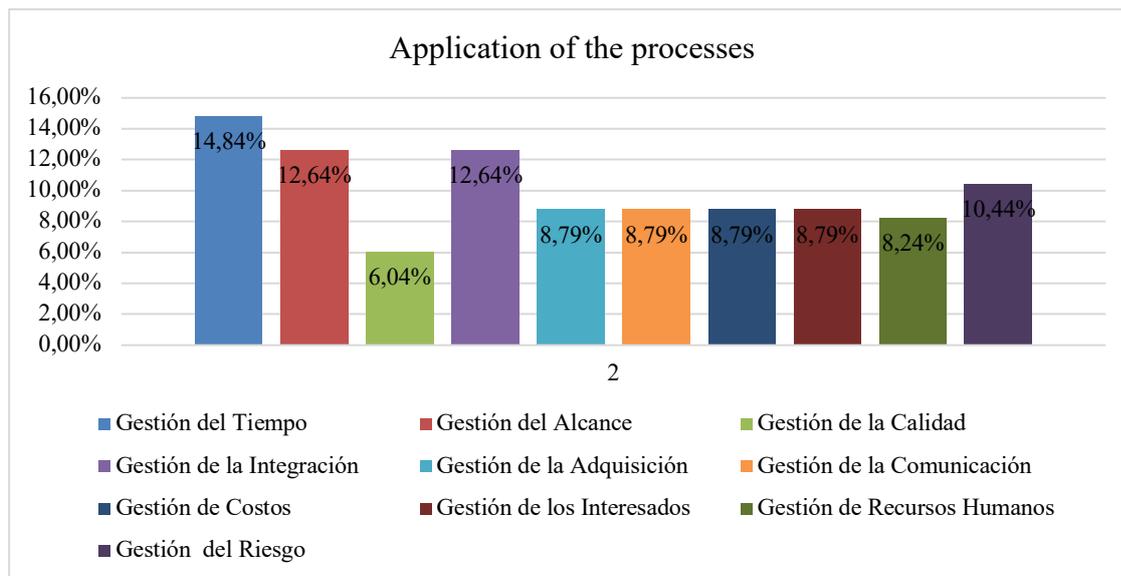


Figure 4. Percentages of the number of processes in the areas of knowledge

Figure 4 shows that according to the 182 questions applied in all the organization's knowledge areas, from 11 (quality management) to 27 (time management) questions were used as a minimum and maximum in each of the areas.

Table 4 and Figure 5 show the results of the degree of maturity by category. For this work, the level of maturity in the Chinácota Mayor's Office was evaluated in the project domain, in the best practices, whose maximum total score is 182 questions, which were distributed by categories as follows:

Table 4  
Maturity level by category

Category	Maximum Score	Score Obtained	Degree of Compliance
Measurement	182	47	25,82%
Control	182	47	25,82%
Improvement	182	47	25,82%
Standardization	182	41	22,53%

Practically, the resulting degree of compliance by category was equal in all (25.82%) and usually the trend of the degree of compliance corresponds to a quarter of the maximum permissible score.

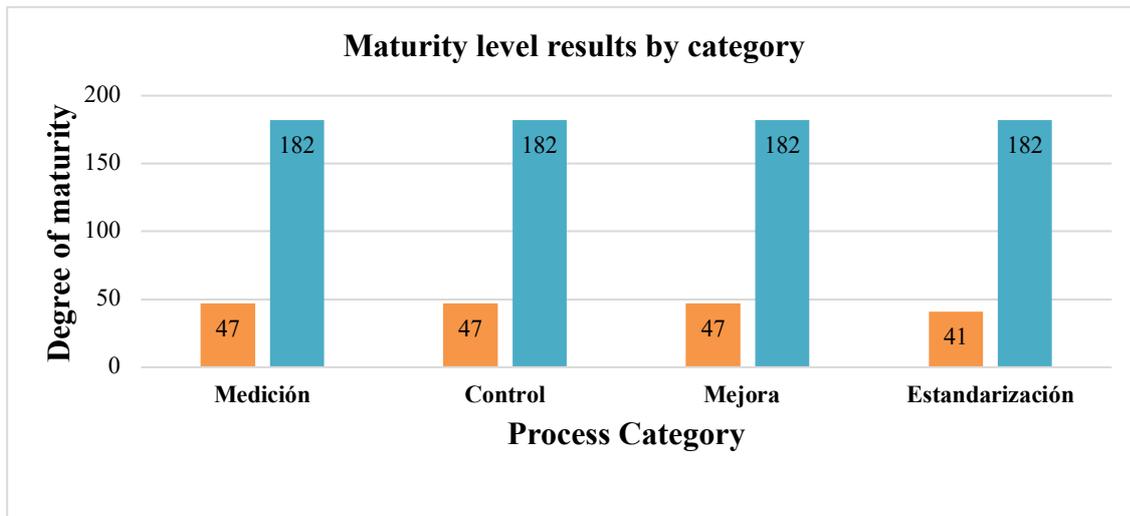


Figure 5. Maturity level by category

Table 5 shows the degree of maturity in project management compliance in general of the Chinacota Mayor's Office in the project domain, distributed as follows:

Table 5  
Degree of maturity by category in Project Management-Mayor's Office of Chinacota.

Average number of internships	45,5
Actual number of questions applied and investigated	182
Average degree of compliance	24,99%

Note: Own elaboration. Field work

It is evident that in project management the average maturity level per category is 24.99% in 45.5 average practices.

In the Municipality of Chinacota, eight (8) projects were identified and registered in the virtual platform of the Project Bank, whose characterization is detailed in Table 6.

**Table 6**  
*Project database - Project exchange - Chinacota's Mayor's Office*

Project Name	Validity	Creation	Type of Resources	Value (\$)
Strengthening of the Justice and Security Sector, Fiscal Year 2019.	2019	26/11/2018	Own	\$ 186.000.000,00
			Free destination	\$ 35.000.000,00
			SGP-Free Investment	\$ 68.000.000,00
			Total	\$ 289.000.000,00
Strengthening of the Environmental Sector.	2019	30/11/2018	Free destination	\$ 88.400.000,00
			SGP-Free Investment	\$ 31.000.000,00
			Total	\$ 119.400.000,00
Strengthening of the Education Sector.	2019	19/11/2018	Own	\$ 156.600.000,00
			SGP - Food	\$ 58.000.000,00
			SGP- Education	\$ 462.000.000,00
			Total	\$ 676.600.000,00
Strengthening of the Sports and Recreation Sector 2019.	2019	21/11/2018	Own	\$ 2.000.000,00
			Free destination	\$ 35.000.000,00
			SGP-Sport.	\$ 37.000.000,00
			Total	\$ 74.000.000,00
Strengthening of the Community Development Sector, effective 2019.	2019	27/11/2018	SGP-Free Investment	\$ 10.000.000,00
			Total	\$ 10.000.000,00
Strengthening of the Equipment Sector for 2019.	2019	04/12/2018	Own	\$ 7.800.000,00
			Free destination	\$ 30.000.000,00
			SGP-Free Investment	\$ 20.000.000,00
			Total	\$ 57.800.000,00
Strengthening of the Agricultural and Livestock Sector, 2019.	2019	28/11/2018	Free destination	\$ 40.000.000,00
			SGP-Free Investment	\$ 94.000.000,00
			Total	\$ 134.000.000,00
Strengthening of the Prison Sector, 2019.	2019	07/12/2018	Own	\$ 5.000.000,00
			Total	\$ 5.000.000,00

*Note:* Source: Chinacota Mayor's Office (2020). <http://www.chinacota-nortedesantander.gov.co/banco-de-proyectos-2019/fortalecimiento-al-sector-deporte-y-recreacion-en-la>

It is noted that all projects were created in 2018 and were in force throughout 2019, of which at least seven (7) had mixed resources (own, free destination-investment, SGP-Free investment). Only one (1) had its own resources.

The results obtained for the management variable under study (see Table 7) are related to the number of processes of the different areas of knowledge, and based on a scalar table of weighted valuation, the survey aligned to OPM3 was applied with a total of 182, whose degree of valuation was 100%, and also shows the percentage of participation of each one with its resulting interpretation:

Table 7  
Relationship of the number of indicators of the areas of knowledge

Type of Management	Indicators	Participation	Interpretation
Time Management	Monitoring and control. Planning	14,84 %	It is evident that in the assessed process, the projects executed by the municipal administration are within the contractual terms and the control within the minimum established limits.
Scope Management	Monitoring and control. Planning.	12,64%	The projects meet their contractual objective.
Quality Management	Monitoring and control. Planning. Execution	6,04%	The quality of the projects is within the contractual parameters of their required technical specifications.
Integration Management	Monitoring and control. Planning. Execution Home Closing	12,64%	It identifies, defines, combines, unifies and coordinates the processes and activities of the related projects in force.
Procurement Management	Monitoring and control. Planning. Execution Closing	8,79%	Procurement management processes are coordinated with suppliers and contractors.
Communication Management	Monitoring and control. Planning. Execution	8,79%	Information is socialized with stakeholders, the information to be communicated is official, essential and relevant, and communication strategies are applied.
Cost Management	Monitoring and control. Planning	8,79%	The municipal administration estimates, budgets and controls project costs in accordance with the Annual Procurement Operating Plan with certification of budget availability.
Stakeholder Management	Monitoring and control. Planning. Execution Home	8,79%	Municipal administration includes processes to identify individuals, groups or organizations that may affect or be affected by the Project.
Human Resources Management	Planning. Execution	8,24%	The municipal administration organizes the hiring process of the work team according to the profile required for the roles within the technical team of the projects.
Risk Management	Monitoring and control. Planning	10,44%	The municipal administration identifies, assesses, budgets and creates contingency plans for project risks.

The indicators are different for each type of management, the participation results are consistent with those presented in Table 3 and Figure 3.

Regarding the interpretation of the projects in the ex ante evaluation, the distribution of resources according to the number of inhabitants is detailed (See Table 8).

Table 8

*Information table - General system of participations and resource distribution*

PRIORITY AND SPECIFIC DESTINATIONS	
1. Forced investment or forced investment.	2. Free investment, free investment or free destination.
17% of the SGP resources will be distributed among municipalities with a population of less than 25,000. These resources will be used exclusively for investment, in accordance with the powers assigned by law. These resources will be distributed based on the same population and poverty criteria defined by law for the general purpose participation. (Art. 357 Inc. 3°).	The municipalities classified in the fourth, fifth and sixth categories, in accordance with the regulations in force, may freely allocate, for investment and other expenses inherent to the operation of the municipal administration, up to forty-two (42%) of the resources they receive for general purposes, except for those assigned to them because they have less than 25,000 inhabitants. (Art. 357 Inc. 5).

Note: Source: Chinacota Mayor's Office (2020). <https://constituciondecolumbia.com.co/cpcart357.html>.

Details on the OPM3 model cycle related to the number of processes in the knowledge areas are shown in Table 9.

Table 9

*Cycle of the OPM3 model applied in municipal administration*

<b>Knowledge</b>	It allowed to know the content of the best practices of the project area according to the PMI, and how the OPM3 model should be applied, complemented with the guidelines of the public administration in project management.
<b>Valuation</b>	The OPM3 survey model was applied, with a total of 182 questions divided into 4 categories of processes, in 10 areas of knowledge related to the project area, the baseline allows the application of continuous improvement processes in public project management.
<b>Improvement</b>	The results obtained in the field work, suggests implementing an improvement plan, to increase organizational maturity in the field of public project management, since the organization demonstrates in practice approximately 24% of project maturity, many aspects should be improved.
<b>Repetition</b>	For the case does not apply, the municipal administration must know, value and improve everything related to the field of projects, so as to consolidate better project management processes.

Regarding the situational diagnosis and with the exposed background (research results) and in accordance with the defined variables of the problem and the research objectives set out in this work, the maturity model applied to the organizational context of the Chinacota mayor's office was determined, once the relevant information was collected, the informative data of the case study project was established (See Table 10).

Table 10

*Background information on the case study project*

1.1. Project Name	Maturity Model applied to the organizational context of Project Management for the Mayor's Office of Chinacota- Colombia.
1.2. Entity	Mayor's Office of Chinacota- Colombia.
1.3. Dependency	Secretary of Planning
1.4. Address	Carrera 4 No. 4-01 Municipal Palace-Barrio El Centro. Chinacota -Norte de Santander.

## **Discussion and conclusions**

On the analysis of the philosophy of the Mayor's Office of Chinácota, this is projected to 2023, as a tourist destination and be at the forefront. But, to do so, it is necessary to lead organized projects, not only in this sector, but it is necessary that these projects are focused on strengthening:

- Primary sector, in respective projects, taking advantage of natural resources and agriculture; generally, they do not involve transformation processes, the products are transferred without added value.
- Secondary Sector, projects that strengthen the manufacturing industry, such as cottage industries, construction and the transformation of materials into a final product.
- Tertiary sector or services, through projects, generating commercial agreements within the municipality with small businessmen, where the municipal administration leads the way, directly attacking the difficult social causes faced and being able to improve competitiveness and development.

The municipality currently faces high poverty rates (90%), as contemplated in the current administration's Development Plan (Page 33); the municipality is in the process of territorial organization and project management must be in line with this.

Likewise, analyzing the organization chart of the municipal administration, there is no clear organization regarding the projects area, nor is there an office that relates all its projects, which does not reflect clarity nor is it coherent with the mission and vision of the Municipality of Chinácota.

The Mayor's Office of Chinácota, whose government executes its Development Plan (2020-2023), based on seven strategic lines and in order to satisfy the needs of its inhabitants. Its welfare is obtained through the execution of projects planned in the fiscal year; although the results have not had a positive perception by the citizens, nor a full compliance with the strategic objectives and project management of the institution; for the variables Bank of projects, which are registered in the virtual platform of the municipal administration, it was evidenced that their projects are formulated with validity of the previous administration, each one approved with its respective budget availability, source of investment and destination; however, they are being executed by the current administration, without any news in the platform of its control, execution, follow-up and closing process; especially, to date the projects are already underfinanced due to sustained increases in inflation, salaries, unit costs, among others, which is a clear indicator of the low management of good practices in project management.

Also, there is no evidence in the project bank platform of the current municipal administration of systematized records of its current projects that are contemplated in the Development Plan; they are only in the budgetary programming in the unified public investment system for the formulation, evaluation, registration, programming, execution and subsequent evaluation of investment projects. It is mandatory to register the investment programs and projects in the Project Bank so that they can be executed during the mayor's term.

The above, it can be concluded that the Mayor's Office of Chinácota, by not having a structured projects office within its administrative distribution officially legalized, no records can be seen in the Bank of projects of the virtual platform; since it has a limited file and it is not systematized, consequently, the document management is insufficient or null, therefore, there is no evidence of solutions to the main gaps in the area of projects of the organization, due to; there is no regulated control of good practices in the handling of project management methodologies by the public sector in the area of projects in its different phases.

On the other hand, for a better understanding of the reader, as a reflection, it is necessary to specify the following question to the case study: Is every need that the municipality has a project? The answer is no, because all the needs derive from a period of municipal administration, they come from the proposal planned in the previous administration, since it was presented with the government plan of the candidates to the public election position. When elected, all these projects are included in the Development Plan, which becomes a guide of projects to be developed during the four-year period, aligned with the budgetary capacity of the municipality and under the guidelines of the public administration that are planned in the fiscal year in accordance with the National Development Plan; it

is not only enough with the resources, but the municipal administration must meet the current expenditure obligations of the municipality.

In addition, not all the needs of a municipality become an executable project in the medium term, since they are included in the candidate's government plan, and once the candidate wins, they are materialized in the Development Plan, whose projects must be executed in four years; however, what happens with the needs that remain outside the Development Plan, because at this point is where the Mayor has the opportunity to manage outside the Development Plan the registration or prioritization with endorsement of possible projects or longer term in execution, either departmental or national order that generates the entire process of implementation of these projects; it should be noted that these projects also include good practices within them.

On the other hand, the interpretation of results of the study management variable, according to the results obtained regarding the number of processes of the different areas of knowledge, and from a scalar table of weighted valuation, the OPM3 survey was applied with a total of 182 questions asked in the different areas of knowledge, whose degree of valuation was 100% to the proposed case study, and the percentage of participation of each one; its theoretical approach allowed to base the OPM3 Maturity Model for Project Management in the municipal administration; in addition, the legal framework and norms of the Bank of public investment projects in Colombia were analyzed. In conclusion, the resulting degree of maturity was 24.99% (low) related to knowledge, the internal-external factors show problems of inaccurate knowledge within the project area, the existence of a high turnover of its employees was evidenced, there are not enough resources for its management; the practice of projects shows lack of definition and outdated maturity in its management. Also, it was detected that all practices associated with risk management and procurement have excessive bureaucracy, standardization processes have a high degree of compliance in the management of scope, time, integration and risk.

The OPM3 maturity level contributes to the best practices of the project domain and the standardization process towards higher domains and processes, necessary for the competencies of the municipal administration, in order for this to become an opportunity, it must take advantage of the reference contributions of the studied maturity model.

Through the application of the OPM3 model, the Mayor's Office of Chinácota identified the best practices applied by the municipal administration in the maturity of its project management processes, carrying out a survey of processes in the different areas of knowledge, performing internal and external analysis, identifying the inadequate definition of the planning and execution processes, determining the causes of inefficient management and determining the impact results generated by the practices of the maturity model in project management; all this to improve time and budgets, improve life cycles and increase the productivity of projects.

Finally, the design of a proposal for the creation of a knowledge center (PMO) was contemplated in the organizational context of the case study, as a solution to the topic studied, where new currents and perspectives for future research are proposed; this office has the integral components for good management of best practices, programs and project portfolios; furthermore, this center is disaggregated in its design (general description, functions, purpose, location, supply, supply, resources involved, relevant users, constituent elements, identification of the operating unit, investment schedule, risk analysis, among others).

With the Maturity Model applied to the case study, it was of great importance within the analysis of public administration in project management, allowing the socialization of the proposal for the design of a knowledge center (PMO) for the Planning Secretariat of the municipal administration.

With this proposal, in this basic research applying the OPM3 survey model complemented with the analysis of the municipal administration's Project Bank, it became evident that the function and role of the planning secretary has an opportunity for improvement. In particular, strengthen the Project Bank, the formulation and execution, which is typically limited to the registration of an inventory of public investment initiatives, to a higher level of management to ensure project control, monitoring and evaluation.

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