

## **Theoretical and Conceptual Background of Process Audit**

### Fundamentos teórico-conceptuales de la auditoría de procesos

MSc. Arlyne Medina Enríquez<sup>1\*</sup> [http://orcid.org/ 0000-0003-2986-0568](http://orcid.org/0000-0003-2986-0568)

MSc. Yuly E. Medina Nogueira<sup>1</sup> [http://orcid.org/ 0000-0002-6090-7726](http://orcid.org/0000-0002-6090-7726)

PhD Alberto Medina León [http //orcid.org/ 0000-0001-6179-6725](http://orcid.org/0000-0001-6179-6725)

PhD.Dianelys Nogueira Rivera<sup>1</sup> [http://orcid.org/ 0000-0002-0198-852X](http://orcid.org/0000-0002-0198-852X)

<sup>1</sup>Faculty of Entrepreneurial Science, University of Matanzas, Cuba

\*Corresponding author: [arlyne.medina@umcc.cu](mailto:arlyne.medina@umcc.cu)

#### **ABSTRACT**

**Aim:** To conduct a study based on defined concepts of audit that allows for determination of performance variables to evaluate efficiency and efficacy of processes as transforming elements of goods/services, and generators of value.

**Methods:** From concrete to abstract, to extrapolate the practical experiences of process management; analysis and synthesis, to study the concepts of audit.

**Main results:** The need to conduct process audit was determined, since it leads to transformation, provides value, and generates efficacy and efficiency.

**Conclusions:** The variables to be considered for process audit are determined, and compatibility with an existing tool is said to allow researchers to utilize it as a tool for continuous improvement.

**Key words:** audit; process approach; efficacy; competitiveness

#### **RESUMEN**

**Objetivo:** Realizar un estudio a partir de los conceptos definidos de auditoría que permita determinar las variables de actuación para la evaluación de la eficiencia y la

eficacia de los procesos como elementos transformadores del producto/servicio y los generadores de valor.

**Métodos:** De lo concreto a lo abstracto; para extrapolar las experiencias prácticas de la gestión por procesos; análisis y síntesis, en el estudio de los conceptos de auditoría.

**Principales resultados:** Se determina la necesidad de realizar la auditoría en los procesos, dado que son estos los que transforman, los que añaden valor, los encargados de lograr la eficacia y la eficiencia

**Conclusiones:** Se determinan las variables a considerar en la realización de la auditoría de procesos y se plantea la compatibilidad con una herramienta existente que permite su utilización como instrumento de mejora continua.

**Palabras clave:** auditoría; enfoque de procesos; eficacia; competitividad

Received: 06/02/2018

Accepted: 28/112019

## INTRODUCCION

The strategic challenge of organizations is to adapt to environmental changes, into a more global and competitive system that allows them to improve their results and seek excellency. Likewise, internal changes are required, based on new internal projections and approaches, which lead to improvements in the way business is managed.

Today, there is consensus on that the main issues are no longer related to designing strategies, but on relative decisions in terms of implementing them, since process roles are not being properly embraced. Without a doubt, it is expressed in the limited integration among different areas, and the efficiency of the flow in which the good/service is realized.

A study done by Comas, Nogueira, and Medina (2013) supports the above, and summarizes the criteria of 14 authors on the failure of organizations when it comes

to deploying designed strategies and process management, due to the absence of a managing system capable of integrating and aligning the two elements.

To accomplish a goal, a number of integrated activities should be done, which, in turn, are part of a process. Hence, the main point of analysis is business management based on the processes that make it up. Zaratiegui (1999) said that the success of organizations depends increasingly on the integration of their entrepreneurial processes with their strategies, mission, and goals.

Therefore, process approach is such a powerful tool today, due to the capacity it has to produce results in a sustainable manner. In face of this scenario, it has been envisioned as an effective and efficient mean to accomplish the goals of an organization.

Additionally, early management control was centered on the financial reports of the organization. However, a modern approach to this kind of control has gone beyond those limits, by integrating the indicators of the financial control system to the indicators of the process (Kaplan and Norton, 2004). It relies on process management (Blanco, 1993), and tackles the attainment of strategic goals of organizations (Goldratt, 1995). Consequently, various research has contributed to the implementation of process management, known as one of the tools to enhance management control (Nogueira, 2002).

Currently, another tool used to support business management is process audit. It evolved from traditional audit, and focuses on proactivity, risk assessment, continuous improvement, and the search for efficiency and efficacy in organizations. It consists of a thorough and integrated objective evaluation of activities and operations performed by organizations to accomplish their missions and goals. It is intended to evaluate a company's goals, and the effectiveness of internal policies, standards, and resolutions adopted by the board of directors.

The aim of this paper is to determine the demands, criteria, and tools that will help build up the subsequent procedure for process audit, in keeping with the demands of modern control. It was based on a study of state-of-the-art concepts, characteristics, and procedures of managing audit and processes found in the

literature, which have been complemented with the authors' experience in process approach development and implementation.

### **Methods**

This research follows three stages. First, to learn the importance and present-day use of process approach, and to consider the results or previous research linked to process improvements, which included a review of more than 80 procedures, and a new practical social response applied in more than 40 manufacture or service companies. Though this experience was incomplete, it offered a reference point and theoretical grounds for adaptation to process audit.

Second, it was characterized by using methods of analysis and synthesis to study the concepts of audit, management audit, and particularly, process audit. A historical-logical analysis was used to understand the contributions of several authors, and the perspectives of their proposals, as a way of gathering compelling tools in process audit.

Last, a similar protocol was implemented to investigate all the different procedures and methodologies related to process audit (which is not so widespread) found in the literature, until recommendations to be integrated to the procedure were presented.

## **DEVELOPMENT**

### **Process approach**

Today, organizations seeking excellency can manage their activities in the form of processes. These processes should increasingly contribute with more value to final users or clients, and other groups, and should always be aligned to the mission, strategy, and strategic goals of the company (Kaplan and Norton, 2004).

Current entrepreneurial culture has improved with the essential postulates of process approach, such as, companies are as efficient as their processes (Amozarrain, 1999); what isn't measured can't be controlled, what is not controlled can't be managed (Goldratt, 1995); the clients' requirements are process demands (International Organization for Standardization [ISO], 2011); place your checkpoint

closest to where the error can be made or where there is a risk of making it (Comas *et al.*, 2013).

Process approach is explicitly or implicitly expressed in a set of good practices of modern business management, namely ISO (2015), as one of the perspectives of the integrated managing structure (Kaplan and Norton, 2008); the EFQM Model (European Foundation for Quality Management) of total quality (European Foundation for Quality Management, n/a); one of the five keys of benchmarking (D. Nogueira, Medina, and Nogueira, 2004); a competitive tool in the hands of world-class manufacturers (Heizer and Render, 1997); its principles are similar to the principles of the theory of critical control points; an excellent mean for coping with squandering and eliminating activities that produce no added value (Medina, Nogueira, Hernández, and Vitier, 2010); it contributes to the implementation of total quality, the philosophy of six sigma (Savolainen, and Haikonen, 2007); integrated management systems, the attainment of continuous improvement (R. J. Junior, Da Silva, and Junior, 2016); and strategic alignment of strategies and processes (Karpovsky, and Galliers, 2015). The principles of some of them are declared and disseminated.

The above is explained through the changes in terms of client treatment, requirements to align strategies and processes to achieve competitiveness, a globalization in which competition goes beyond local markets and the development of information technology and communications.

In spite of this relevance and the solid grounds that motivate it, this approach is still hard to implement fully. The work of various companies designed under process approach can be affected by the mere replacement of their main executives. Others suffer the loss of all the information compiled for years to set a standard (Alberto Medina *et al.*, 2010).

Many scholars and consultants in the area see the favorable scenario created when the process and functional approaches coexist, or when processes are recognized, goals are set, clients and stakeholders are acknowledged, the design is precise, and the main indicators are properly established on team work inside the organization. Accomplishing these results, at least, implies changes in the

culture and the values of the organization; being the result of a work strategy where not only knowing the desired state, but also the current status, is important. In that sense, the implementation of process approach and its use as a tool for continuous improvement, as recommended by Alberto Medina, Nogueira, Hernández, and Comas (2019), is advisable. It was the result of a study of more than 80 procedures, which was improved through practical application. However, it was not conceived to be used as audit procedure, and therefore, the new requirements to achieve that end must be incorporated.

### **Definitions of audit and management or process audit**

To determine the demands of process audit and its insertion in the future procedure, a study of concepts and timeline of audit, management audit, and process audit was conducted.

Table 1 shows a study of the concept of audit done by several authors, based on previous research done by Arlyne Medina (2016). In conclusion, there are irregularities in the establishment of the concept, especially in defining What?, Who?, What for?, Based on what?, and what's the type of control to perform?

**Table 1:** Concepts of audit

<b>Authors/year</b>	<b>Concept/definition</b>
Andrew Nelson (1942)	Systematic review of books and bookkeeping notes of a corporation, limited company, or dealer.
Holmes (1945)	Scientific systematic verification of bookkeeping, receipts, and financial and legal records.
Menéndez Aniceto (1957)	Review, verification, and presentation of economic actions of the company.
Holmes (1960)	Scientific systematic verification of documents and reports, bookkeeping, and other financial and legal records of individuals, firms or corporations.
AICPA (1973)	Objective or ordinary examination of financial states by an independent auditor, which is the expression of the truthfulness in which a financial state is submitted, in accordance with generally-accepted accounting principles.
Arens and Loebbecke (1980)	Process of gathering and evaluating evidence to determine and report on the degree of correspondence between accounting information and the set criteria.
Miranda Estrada (1981)	Review, verification, presentation, and submission of economic actions taken by the entity, through examination of receipts, books, checks, legal documents, and other evidence.

Vérez Basanta (1984) <i>apud</i> Rojas González (2014)	Review, verification, presentation, and submission of economic actions taken by any organization, through examination, study, and analysis of bookkeeping, receipts, and other evidence.
Cook and Winkle (1987)	Compilation, accumulation, and evaluation of evidence available on a given entity to determine and report on the level of accomplishment between information and set criteria.
William (1991)	Comprehensive constructive examination of the structure of a company, evaluation of plans and goals.
Suárez (1999)	Inspecting, reviewing, verifying, and investigating are <i>ex-post</i> or <i>a posteriori</i> activities, following economic-financial actions.
Montgomery (1991)	Systematic process to evaluate and gather evidence linked to economic developments, objectively, to evaluate and communicate the results to the stakeholders.
Borras Atiénsar (1994) <i>apud</i> Pereira López <i>et al.</i> (2017)	Systematic process to gather and evaluate evidence linked to reports on economic activities and other related developments, objectively, whose end is to determine the level of correspondence of the informative contents.
Decree-Law No.159 (1995)	Systematic process to objectively gather, evaluate, and verify evidence of statements related to economic-administrative acts or events.
Sierra Gutiérrez (1996)	Ordered compilation of evidence.
Arens and Loebbecke (1996)	Compilation and evolution of data on quantifiable information pertaining to an economic entity.
Weston and Capeland (1996)	Capacity of hearing and reviewing accounts, aimed to evaluate the economy, efficiency, and efficacy of resource use and control.
ONA (1996)	Examination and evaluation of an entity, and compliance with the current legislation.
Maury Agaisse (2000)	Systematic examination of related financial states, records, and transactions, to determine the compliance of generally-accepted accounting principles with managing policies or the established requirements.
Collective authorship (2002)	Effective tool to control, measure, and evaluate the operations and processes of an entity.
Blanco Encinosa (2002)	It helps gather and evaluate evidence, and certain features of balances and transactions in ledger accounts.
López Toledo (2003)	Evaluation of the economy, efficiency, and efficacy of resource use and control.
Cook and Winkle (2006)	Systematic process to gather and evaluate evidence linked to reports on economic activities, objectively.
Cintra Valdés (2007)	Activity that verifies accounting correction of figures in financial states.
Manual of auditor (2007)	Control technique aimed to assess internal control and observation of professional principles of generally-accepted accounting principles.
Manual of auditor (2007)	Practiced by qualified and independent professionals, with the capacity to evaluate standards and technical procedures.
Resolution No. 250	Examination and evaluation of documents, operations, records, and financial states of

(2007)	the entity, as well as the results of their operations, and conformity with economic-financial provisions.
Law No. 107 2009	Gathering and unbiased evaluation of evidence, which favors sound judgment of the level of compliance with the internal control implemented, and evaluation and specification of the causes, impact, and liability for deficiencies in control, clients, and stakeholders.
Virginia Pérez (2009)	To prove the veracity and integrity of accounting, and the real financial situation.
León Lifconich (2010)	Need to keep permanent and more effective control in the company, including faster and more effective decision making.
Resolution No. 60 2011	Systematic examination, keeping a permanent more effective control.
Carmona González (2012)	Systematic examination of control.
Almaguer López (2012)	Systematic process, in keeping with the set regulations and procedures.
Moyorga Díaz and Saltos Cruz (2013)	Compliance with legal provisions, administrative principles, allowing for efficient, effective, and efficacious development of companies. Company effectiveness.
Collective authorship (2014)	Systematic process done in keeping with the established regulations and technical procedures, which consists in gathering and evaluating evidence objectively, on statements derived from legal or technical, economic, administrative acts, among others, in order to determine the level of correspondence among these statements, current legal stipulations, and set criteria.
ISO 14001 (2015)	Systematic, independent, and documented process to gather and evaluate evidence objectively, to determine the extent to which audit criteria (internal or external) are fulfilled, in one or more disciplines.
Castilla Torres (2016)	Analysis leading to decision making that strengthens pre-existing controls, and has an effect on efficiency and efficacy levels.
Moyorga Díaz <u>et al.</u> (2016)	Planning tool, delivery of pen-drive containing the necessary recommendations as a fundamental part of continuous improvement processes.

Source: Medina (2016).

Stemming from the above analysis, the concept of audit has been observed to have evolved in time. Initially, it is regarded as a systematic examination of accounting and financial states. From 1987 on, there is a need to control the system of information, regulations, and operational procedures. Meanwhile, a reactive character was observed at the beginning, though from 1991 on, it is seen as a tool for planning and control, of comparing factual and planning, and the ensued adoption of measures, particularly on prevention. Emphasis on the search



of efficiency, efficacy, and effectiveness was observed from 1996 on, oriented to and for the client.

Therefore, in this paper, a systematic examination of review and control of process to evaluate evidence will be regarded as the fulfillment of all accounting principles, legal documents, standards and procedures in place, that enable proactive decision-making to achieve efficiency and efficacy.

A similar analysis was made to see the evolution of the concept of managing or process audit (Table 2). The two types are linked through the contact points found in both audit types, and their dependence on process approach (Y. E. Medina *et al.* 2017).

**Table 2:** Concepts of managing audit and process audit

Author	Definition/concept
Neuwert (1985)	A control technique that provides management with a method to evaluate the effectiveness of operational processes and internal controls.
Cook and Winkle (1987)	Examination and evaluation of business operations in order to report to management if the several operations being performed are in keeping or not with the set policies.
William (1991)	Thorough and constructive examination of the organizational structure of a company or any other entity, and of their control methods.
Decree-Law No.159 (1995)	Evaluation made to an entity in order to set up the level of economy, efficiency, and efficacy of planning, control, and use of resources.
Termes Angles (1996)	It is the art of conducting independent evaluation of policies, plans, controls, and practices of an entity, aimed to locate the areas that need improvement.
Redondo Dura <i>et al.</i> (1996)	A new advisory technique that helps analyze, diagnose, and make recommendations to companies.
Prado González (1996)	Examination done of an entity in order to evaluate the level of efficiency and efficacy in which resources are managed.
Mills (1997)	A technical function performed by an expert, consisting in the application of several different procedures that facilitate technical assessment.
Fernández Arena (1993)	Thorough and objective review of institutional goal attainment.
Guedez Alejo (1999)	Methodological instrument to perform objective, systematic, structures, which rely on consistent, professional, <i>a posteriori</i> , and documented examination of a sector from the government (body, program, project or operation), considering the goals set in the legal or regulatory framework, to determine the accomplishment of a mission, objectives, and goals, as well as efficiency, efficacy, economy, quality, and impact of performance.

Collective authorship (1999)	A methodological instrument to perform objective, systematic, structures, consistent, professional, a posteriori, and documented examination of management, considering the goals set in the legal or regulatory framework, to determine the accomplishment of a mission, objectives, and goals, as well as efficiency, efficacy, economy, quality, and impact of performance.
Institute of International Auditors (2002)	A progress made in administration in the way it fulfills goals, performs management functions of planning, organization, and control, with effective decisions.
Armada Trabas (2003)	A systematic process to gather and evaluate objective evidence of statements concerning economic acts and events to determine the level of correspondence of these statements and already-set criteria, and to report the results to the interested users.
Aguilera Mesa (2003)	It shows the way the level of economy, efficiency, efficacy, ecology, and even fairness in resource control and use is established in a more rational manner.
De Armas García (2005)	A process to examine and evaluate the activities carried out in an entity, program or project, in order to determine the level of efficiency, efficacy, and economy.
Álvarez Betancourt (2009)	It is the one focusing on institutional management, to evaluate the efficacy of results in relation to the set goals, human, financial, and technical resources utilized to fulfill goals.
Hevia Vázquez (2009)	Examination designed by auditors, following audit techniques and methods, which checks efficiency and adjustment of the internal control system.
Vasconcelos Lira (2011)	Evaluation criteria of management. They must be designed for each particular step, and may be applied to similar cases. Recommendations on management must be extensive and adapted to the event overseen, where the causes of inefficiency and its consequences, are analyzed.
Álvarez Umaña (2012)	Examination of information related to economy, efficiency, efficacy, ethics, and ecology, through which the audited entity makes use of resources, and reports on the level of conformity.
Resolution No. 340 (2012)	It consists in examination or evaluation of a body, organization, entity, program, project, process or activity to establish the level of economy, efficiency, efficacy, quality, and impact of performance on planning, control, and use of resources, and on the conservation and preservation of the environment, and to check compliance with applicable provisions.
Collective authorship (2013)	A systematic review of an entity's activities in relation to certain objectives and goals, and in terms of efficient and economic utilization of resources.
Grimaldo Lozano (2014)	A process made of a series of parameters that make it an essential tool for organizations. It allows the collection of evidence, determination of reliability and quality of activities performed by the organization, in accordance with the set criteria, requisites, policies, and procedures to help decision-making.
Chora Verdezoto (2014)	An internal audit of processes made within an organization, defined by many authors as two different types of audit. However, they pursue the same end: achieve process efficiency.
González Cruz <i>et al.</i> (2015)	Process management audit is an essential type of quality evaluation based on process management. It is oriented to providing objective information in order to determine the extension to which audit criteria are met.

Pérez Romero (2015)	It is a critical, systematic, ordered, and unbiased examination of an entity's management and processes, as well as procedures and activities to determine the efficacy of preset goal fulfillment, the efficiency, efficacy, and economy to gather and use resources.
Reyes Tomala (2015)	It is an overseeing association aimed to examine and evaluate internal control and management, using human resources. It evaluates the economy, effectiveness, and efficiency. This audit will examine and evaluate process results.

Source: Medina (2016)

Table 3 shows the main results achieved in a study of the previous concepts.

**Table 3:** - Main characteristics revealed by the study of the concepts of audit and managing audit or process audit, and managing or process audit

<b>Conclusions:</b>	<b>Audit</b>	<b>Managing or process audit</b>
What?	A systematic process, control technique, comprehensive and constructive examination, need to keep control, accountability, verification of accounting.	A systematic process, full and constructive examination, evaluation of performance.
Who?	Auditor, independent professional, skilled professional.	Auditor, independent professional, skilled professional.
What for?	To gather, evaluate evidence objectively, control, planning, prevents the violation of regulations, establishment of performance standards.	To gather, evaluate the economy, efficiency, and efficacy of process and observance of regulations, to establish performance standards.
Based on	Standards and legal procedures, generally-accepted accounting and administrative principles, set policies and guidelines, and economic-financial stipulations.	Regulations and legal procedures, generally-accepted accounting and administrative principles, set policies and guidelines, quality, and performance impact.
Type	Economic-administrative, accounting, company structure, evaluation of plans and objectives.	Body, organization, entity, program, process or activity.

Source: Self-made.

### **Methodologies for managing or process audit**

The final criterion was the study done by Arlyne Medina (2016), which considers the views of forensic audit (González and Alfaro, 2012), and continuous audit (Fernando, n/a.); as well as others oriented to meeting the clients' needs (Alfonso and Hernández, 2009; Bolaño and Alfonso, 2011), the key factors (Aisa, 2014), prevention of risks (Committee of Sponsoring Organizations of the Treadway

[COSO], 2004), risk administration based on strategic management (Bolaño, 2014), and process improvement through audit (Lewis, 2015). Thus, several variants are suggested:

- The need to be based on process approach.
- To be considered as a tool for continuous improvement; therefore, its application is systemic and proactive.
- It must aim to oversee improvements in efficacy and efficiency, and centered on the processes that contribute most to the organization.
- It must rely on team work, and the dedication of management.
- The objective must be to align processes and organizational strategies, and to transform the clients' needs into process demands.
- It must be thoroughly represented by every process, prior to the creation of a process map of the organization, and the statement of their procedures, regulations, standards, and instruments, in such a way, that it can contribute to knowledge management, and the maintenance of already existing good practices.
- Priority must be placed on dealing with organizational risks, particularly, those hindering the attainment of a strategy.

## **Discussion**

Process audit is a systematic process aimed to fulfill actions and strategies; it evaluates performance, and it is regarded as a tool to improve quality, as it looks at greater operational efficiencies and better process results. The scopes expected are present in all areas, departments or processes of the organization.

It functions depending on objective evidence; a clear idea of process performance level at the entity is necessary. Therefore, the person in charge of it, especially from the organization, must be skilled, so that it can be implemented as a continuous improvement process. It examines and controls process compliance with all the regulations in the particular areas, compels the search of higher client satisfaction, and improves the use of resources.

Its nature, objectives, the effectiveness of policies, standards, agreements, stipulations, and administrative procedures in each area must be known, in order to perform reviews and learn about processes.

These statements, and the trend observed throughout the evolution of the concept, demonstrate the need to conduct process audit, since they involve transformations, add value, contribute to efficacy (goal achievement), and efficiency (cutting down costs or increasing provisions); they are the ones which receive the demands from the clients, and the ones that should provide a solution to them. Hence, every successful experience in relation to the application of this tool should be considered in the proposal.

Coinciding with the current demands of audit, Alberto Medina, Nogueira, Medina, García, and Hernández (2008), referred to the importance of considering the following premises to apply a procedure of process improvement: high executives should be committed to it, skilled specialists with the capacity to present new ideas, and make decisions must be engaged, all of it relying on team work.

Likewise, the experiences acquired in the implementation of process management, the current requirements to produce strategic alignment, and the results from the study of the concepts of audit and its evolution, suggest that the process audit proposed should have the following objectives: oversee that processes respond to the strategies of the company, and, therefore, to the requirements of clients; to ensure that all the members of the organization focus on proper processes; to represent the processes of an organization as the basis to enhance effectiveness, efficiency, and flexibility of processes, seeking better performance, faster and more economical; and finally, to create management and process audit culture that includes an important part of the values and principles shared by the members of all the organization; a work system based on continuous improvement.

Based on previous research on process improvement and process audit in this study, it can be said that there are common and necessary steps, namely a company's process determination and its representation in the map of process, determination of high-priority processes to be improved, process representation,

and the proposal of improvements, follow up, and control (Alberto Medina, Nogueira, Hernández, and Díaz, 2012).

Likewise, this new evidence called for the need to perform team work-based audit, the philosophy of continuous improvement, and the need of strategic alignment of the organization. Therefore, evaluation of all the evidence in terms of current legal documentation, regulations, and procedures, which contribute to better proactive decision-making, should be made, based on risk analysis and the search for efficiency and efficacy.

## **CONCLUSIONS**

Audit has been recognized as a systematic process, a comprehensive and constructive examination to maintain control and oversee accounting. It rests on objective evaluation of evidence, and tries to prevent the violation of regulations, procedures, and principles, to set up performance standards. Audit has evolved in time, from a reactive to a proactive position.

Managing and process audit is intended to perform full and constructive examination, and it evaluates performance. It is centered on process efficiency and efficacy, as transforming elements of goods/services, generating value. Through them, the observance of regulations and performance standards is supervised, therefore becoming a tool for process improvement.

Process approach is based on the recognition that the company is as efficient as its processes, and it focuses on clients and the achievement of strategic goals. The establishment of tools that guarantee the supervision of desired standards is a powerful tool for improvement.

The creation of procedures that help carry out process audit is new evolution, necessary to meet the current requirements in relation to the need to meet clients' demands, and the necessity of aligning processes and organizational strategies.

## **REFERENCES**

- Aisa, J. (2014). *Los KRI y las auditorías continuas*. Retrieved from <http://auditoool.org/component/users/?view=registratio>
- Alfonso, D. y Hernández, M. (2009). Integración del Sistema de Dirección de la Empresa. *Nueva Empresa*, 5(1), 43-45.
- Amozarrain, M. (1999). *La gestión y mejora de procesos*. Retrieved from [http://web.jet.es/amozarrain/Gestion\\_procesos.htm](http://web.jet.es/amozarrain/Gestion_procesos.htm)
- Blanco, F. (1993). *El control integrado de gestión. Iniciación a la dirección por sistemas*. México: Editorial Limusa, Grupo Noriega Editores.
- Bolaño, Y. (2014). *Modelo de dirección estratégica basado en la administración de riesgos para la integración del sistema de dirección de la Empresa*. (Tesis de doctorado). Instituto Superior Politécnico José Antonio Echeverría, La Habana, Cuba.
- Bolaño Y. y Alfonso, D. (2011). Método de Identificación-medición y evaluación de riesgos para la dirección estratégica. *Ingeniería Industrial*, 32(2), 162-169.
- Comas, R., Nogueira, D. y Medina, A. (2013). Análisis evolutivo de los sistemas de información y su marco conceptual. *Ciencias de la Información*, 44(2), 9-15.
- Committee of Sponsorin Organizations of the Treadway (2004). *Enterprice Risk Management. Integrated Framework*. Retrieved from [www.coso.org/publication/ERM/COSO\\_ERM\\_ExecutiveSummary.pdf](http://www.coso.org/publication/ERM/COSO_ERM_ExecutiveSummary.pdf)
- European Foundation for Quality Management (s.f.). *Modelo de excelencia EFQM*. Retrieved from [www.euskalit.net/que\\_le\\_ofrecemos/modeloexcelencia1.htm](http://www.euskalit.net/que_le_ofrecemos/modeloexcelencia1.htm)
- Fernando Klus, J. (s.f.). *La auditoría continua y el ojo de Sauron*. Retrieved from <http://auditoool.org/component/contact/contact/12-contacts/1>
- Goldratt, E. M. (1995). *La Meta. Un proceso de mejora continua*. México: Ediciones Castillo.
- González, E. E. y Alfaro, M. I. (2012). Ventajas de la auditoría forense en la fiscalización de grandes empresas en Chile. *Revista Contaduría Pública*, 20(6), 22-28.
- Heizer, J. y Render, B. (1997). *Dirección de la Producción. Decisiones Estratégicas* (4ta ed.). Madrid: Prentice Hall Iberia.

International Organization for Standardization (2011). *Norma ISO 19011:2011, Directrices para la auditoría de los sistemas de gestión de la calidad y/o ambiental*. Ginebra, Suiza: Autor.

International Organization for Standardization (2015). *Norma ISO 9001:2015, Sistemas de gestión de la calidad. Requisitos*. Ginebra, Suiza: Autor

Junior, R. J., Da Silva, D. y Junior, R. R. (2016). Avaliação de Fatores e Variáveis que Influenciam a Sustentação de Programas de Melhoria Contínua na Visão de Especialistas. *Revista Ibero-Americana de Estratégia*, 15(3), 88-95.

Kaplan, R. S. y Norton, D. P. (2004). *Mapas estratégicos*. Barcelona, España: Gestión 2000.

Kaplan, R. S. y Norton, D. P. (2008). *The execution premium: integrando la estrategia y las operaciones para lograr ventajas competitivas*. Barcelona: Deusto.

Karpovsky, A. & Galliers, R. D. (2015). Aligning in practice: from current cases to a new agenda. *Journal of Information Technology*, 30(2), 136-160.

Lewis, P. (2015). *Cómo mejorar los procesos de auditoría*. Retrieved from Websrv/Datasrv/Información Aplicaciones/Auditoría/ar0509\_auditoria\_rev0.pdf

Medina, A. [Arlyne] (2016). *Aplicación de un procedimiento de auditoría de procesos en el Aeropuerto Juan Gualberto Gómez*. (Tesis de maestría). Universidad de Matanzas, Matanzas, Cuba.

Medina, A. [Alberto], Nogueira, D., Hernández, A. y Comas, R. (2019). Procedimiento para la gestión por procesos: métodos y herramientas de apoyo. *Revista Chilena de Ingeniería*, 27(2). doi: <http://cl.submission.scielo.org/index.php/ingeniare>

Medina, A.[Alberto], Nogueira, D., Hernández, A. y Díaz, Y. (2012). Consideraciones y criterios para la selección de procesos para la mejora: Procesos Diana. *Ingeniería Industrial*, 23(3), 272-281.

Medina, A. [Alberto], Nogueira, D., Hernández, A. y Vitier, J. (2010). Relevancia de la Gestión por Procesos en la Planificación Estratégica y la Mejora Continua. *Revista EIDOS*, 2, 65-72.



Medina, A. [Alberto], Nogueira, D., Medina, A. [Arlyne], García, A. y Hernández, A. (2008). Selección de los procesos clave de una instalación hotelera como parte de la gestión de mejora de los procesos. *Revista Retos Turísticos*, 7(3), 14-19.

Medina, Y. E., Nogueira, D., Medina, A., Medina, D., El Assafiri, Y. & Castillo, V. J. (2017). Methodolgy for Knowledge Management Audit. *Global Journal of Engineering Science and Research Management*, 4(11), 11-18.

Nogueira, D. (2002). *Modelo conceptual y herramientas de apoyo para potenciar el control de gestión en las empresas cubanas*. (Tesis de doctorado). Instituto Superior Politécnico José Antonio Echeverría, Ciudad de La Habana, Cuba.

Nogueira, D., Medina, A., y Nogueira, C. (2004). *Fundamentos para el Control de la Gestión Empresarial*. Ciudad de La Habana, Cuba: Editorial Pueblo y Educación.

Rojas, E. (2014). *Auditoría especial a la empresa estatal socialista Unidad Empresarial de Base Ganado Menor*. Las Tunas: Unidad Empresarial de Base Ganado Menor.

Savolainen, T. & Haikonen, A. (2007). Dynamics of organizational learning and continuous improvement in six sigma implementation. *The TQM Magazine*, 19(1), 66-17.

Zaratiegui, J. (1999). La gestión por procesos: su papel e importancia en la empresa. *Economía Industrial*, 6(33), 81-88.

### **Conflicts of interest and conflict of ethics statement**

The authors declare that this manuscript is original, and it contains no plagiarism, conflicts of interest, or conflicts of ethics. The authors are liable for the content of this article, adding that it contains no plagiarism, conflicts of interest or conflicts of ethics.

### **Author contribution**

Arlyne Medina Enríquez: Literature review. Theoretical research. Drafting of the manuscript. Analysis of results.

Yuly Esther Medina Nogueira: Literature review. Theoretical research. Drafting of the manuscript. Analysis of results. Utilization of bibliographic manager and the required guidelines to authors.

Dr. Alberto Medina León, PhD. Methodological design and research Proofreading of the manuscript. Redaction of conclusions and recommendations. Author of previous works that contributed to this research.

Dr.C. Dianelys Nogueira Rivera, PhD. Methodological design and research Proofreading of the manuscript. Redaction of conclusions and recommendations. Author of previous works that contributed to this research.