

The process approach's contribution in internal auditing: An improved risk assessment for optimized processes

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Abstract

The traditional model deployed to ensure internal auditing mission is outdated. The internal auditing requires a new approach for the better restructuring and organizing the step to follow for this purpose. The function of internal auditing is recognized as a strong contributor to the development of governance practices across all sectors. It ensures an effective evaluation of the processes and controls within an organization. Furthermore, it provides an assurance about the compliance of the procedures with international standards, laws, regulations and strategies of the firm. As a fact, the internal audit function improves internal controls by understanding the functioning of the processes, analyzing the risks and identifying changes that must be conducted for an appropriate management action taken. The objectives are both to fill any gap in the risk management process of the firm and to optimize the operationalization of its processes.

In this paper, we propose a new audit review process based on the process approach as advocated by the ISO9000:2000. We demonstrate how the process approach used in logistics fields contributes efficiently in internal auditing from the identification of the requirements, quality characteristics and resources of the process to the definition of the deliverables. We develop a new formalism of the internal auditing approach using the technique of meta modeling. The template increases the efficiency of quality process assessment by formalizing, firstly, a guide to be followed by internal auditors to analyze the process 'as it', secondly, a model that design the links between the concepts, actions and resources. Therefore, the proposed formalization integrates the operational, relational and structural spaces that take into consideration all the resources, actors and outputs of a process. We recommend a mixed-method approach that combines internal auditing practices, risk assessment practices and the process approach.

Keywords: Internal Audit; Meta-model; Optimization; Process Approach, Risk Assessment

JEL Classification: M42

Paper type: Theoretical Research

1. Introduction

Lately, internal auditing is considered as the fastest emerging profession due to the growing need of the organizations to receive assurances on key controls that are relied upon to manage their activities, risks and processes. The internal auditors report to management on internal functioning of the processes and provide assurance for an improved governance and an efficient risk management.

Internal audit contributes to helping executive management in accomplishing their responsibilities related to risk assessment and process improvement. According to Spira and Page (2003), it acts as an advisory function, which monitors risks, identifies strengths and weaknesses of the internal control system so as to assist in the management with the implementation of the risk assessment process. Hence, internal auditing has a unique role in process governance because it ensures that the procedures and actions are set up in conformity with performance standards and audit requirements.

The development of new approaches to the conceptualization of the internal auditing process and the emergence of various internal audit scope of work requires to think about a pragmatic and appropriate approach that will combine all those aspects. It is within this reflection that we suggest merging the process approach to internal audit methodology.

The process approach is undeniable in risk assessment as it describes the business processes of the firm and defines all the management strategies, procedures, actors and resources. This paper proposes an innovative method of auditing that combines internal audit practices and the process approach used in logistic. Insofar as internal auditors are concerned with the effectiveness of operational activities, the logistic approach provides a deeper understanding of the procedures and all the techniques, tools and process requirements. These four components are mutually dependent. Procedures, techniques and tools to support the process requirements and together they form a whole large process. Several process requirements (e.g. Continuous improvement, customer satisfaction, optimized resources...) and some techniques and tools (e.g. Benchmarking, Auditing, Consulting, Failure modes and effect analysis Method IEC-60812 (FMEA)...) have been already developed by researchers through different works (IIARF (2013); Hansson, and Klefsjö, 2003; Dale, and McQuater, 1998; Tummala and Tang, 1996; Oakland, 1989). They highlighted the importance of the effectiveness use of the techniques to insure the conformity of the process to its requirements.

In sum, our paper contributes to internal auditing research in three ways. First, we suggest a structured template and practical methodology that will allow the internal auditors to model efficiently the operational activities of the firm based on the process approach. Then we will present the methodology to identify, analyze and control the subsequent risks and problems. Last, it will be about to realize a meta-model of the new mixed approach that provides a clear review of the process and its components. In the conclusion we will present some recommendations and perspectives of our method.

2. Beyond a Classic Approach, Toward a New Internal Audit Framework

Returning to its initial beginnings in 1960, the contingency theory marked a break with the principle of 'The One Best Way' which doesn't take into consideration both the internal and external environment and fail to consider the heterogeneity of the context of the activity of the firm. According to Desreumaux (1998), contingency theory is based on the premise that there is no identical structure that applies to all organizations. But, rather, the choices that are made regarding structures are conditioned by the particularities of the organization and its social, economic and regulatory environment. The importance of the theory lies in the fact that it allows

the concerned managers to proceed to preliminary diagnosis for implementing any management system within an organization. This analysis enables the identification of the main factors that influence the decision to adopt a particular management system, and hence, to adapt its requirements to each organization. For that, we propose in this paper to redesign an existing approach considering internal and external components that take part in the operationalization of concerned activity within an organization.

The internal organization of a firm is apprehended depending on the degree of the formalization of its processes and procedures. A structured organization facilitates the running of an internal audit mission. The theoretical research about the importance of the organizational structure as a factor of contingency revealed that they can take two main forms. The distinction is made between Centralized and Decentralized structures (Kalika, 1987). The centralized structures erect a unique management's decision-making power. In contrast, decentralized structures involve the operational and functional managers in the decision-making process. An internal auditor must use those concepts and be aware of the importance to incorporate all the operational functions and managerial supports used to realize an operation while auditing: To be inspired by the decentralized structure. We cannot deny that the organizational structure adopted may not be necessarily the one that the auditor must adopt in his audit approach, but it affords a clear vision about the links between the procedures and components of a determined process. For this purpose, we choose to mobilize an existing pragmatic approach which is the process approach to redesign the internal auditing approach. This proposed mixed approach restructure the way an auditor analyze and control the functioning of an organization by taking into consideration all the components and factors that impact the operations.

To set up the suggested mixed approach, we first analyze the link between the two approaches. We identify the internal audit's contribution in process improvement and how can we use the process approach in internal auditing? Furthermore, we integrated all the components of a process by defining the relevant performance measurement of a process while auditing.

3. Internal Audit's Contribution in Risk Assessment and Process Improvement

Internal auditors are employees of the organization that are appointed by the executive's directors. Although part of management, they act as an independent reviewer and appraisers to evaluate and control the compliance of the procedures with the governance approach of the firm and the international management standards. The internal auditor's responsibilities are related to multiple areas.

According to the IIA¹, risk management process is the first scope of intervention of internal audit. Its role is to help the executive management in accomplishing their responsibilities related to managing the risks by identifying risks and weaknesses of the internal control system and oversight of the reliability of the risk management strategy. In this regard, Internal auditors take part in the implementation of the risk management process (Page & Spira, 2004). It is necessary for effective management of an organization to identify and analyze the different risks that it faces on a normal daily basis. This involves the establishing of control procedures that will indicate the achieved level of performance and, consequently, draw attention to the eventual corrective measures. Hermanson & Rittenberg (2003) find that internal audit function has great significance in risk management process by providing feedback to management and directors on the effectiveness of the process in an aggregated form.

We notice that nowadays there are new factors that stand at the base of the amplification of company operational risks, and they are so classified:

¹ Institution of Internal Auditors.

- The evolution of the organization's complexity regardless of the complexity of the economic and social environment.
- The acceptance of a certain risk level by the companies as a business item to improve profits.
- Reduced diffusion of an internal auditing function ²
- The existence of aggressive company policies that must take into consideration the international standards and 'best practices.'
- A high reliance on both the economic conditions and international conjunctures.

Interestingly, the most efficient way to manage the risks associated with these factors is to combine the process approach³ with the internal auditing practices. To develop, risk assessment involves risk-management planning, risk resolution and risk monitoring. The risk management planning contributes to anticipate each risk item, including the interconnection of the risk item plans and the overall project plan. For the risk resolution, it consists to produce a situation in which the risk item will be eliminated or resolved. Finally, the risk monitoring implicates tracking the progression of the project toward resolving the risk item and setting up corrective and appropriate actions. (Boehm, 1991)

The second area is corporate governance. It is considered as a central concern because it provides the structure and the guidelines in which the objectives of the organization are set. In this context, the European Confederation of Institutes of Internal Auditing ECIIA (2005) considers that internal audit provides independent and objective assessments to the executive management regarding the quality of internal controls and the degree of apprehension of the firm's risk. It is an independent source of unbiased opinion to manage and control the processes of the firm who are the key holders of the strategy.

To sum, two main activities of internal auditing are recognized: Consulting activity and assessment activity. It is necessary to define the difference between these two services. The consulting activity is defined as the advisory service to improve the organization's operations, control processes and risk management without assuming the management responsibility⁴. The assessment activity involves the evaluation of the conformity of the processes with the performance standards and total quality management requirements.

According to ISO 9001 certification ⁵, there are 8 principles of quality management to lead the company towards optimum performances:

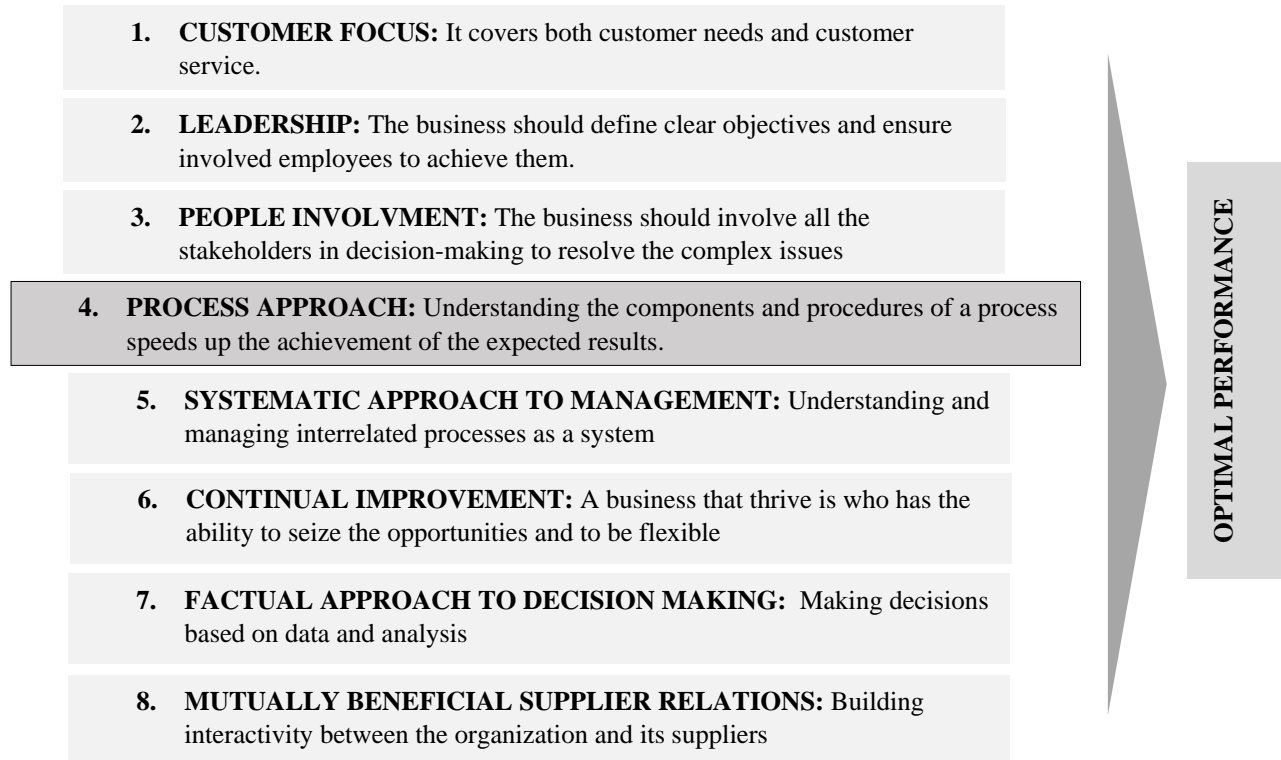
² Depending on the line of work and the size of the firm, an internal auditing function may be compulsory. However, in most cases, it is not required by law to have an internal audit department.

³ In order to identify, analyze and control all the components, resources, strategies and actors of all the processes of the firm by a fancy modelling that we will develop on this paper in section 4.

⁴ It is important to clarify that internal auditors are independent, their mission is to assist the executive management in reviewing organizational performance in order to promote positive changes by identifying and analyzing the strengths, weaknesses and opportunities of the organization.

⁵ The ISO 9001 certification is the basis of the emergence of the process approach and the development of a useful model for preparing internal audits.

Figure 1: The 8 principals of total quality management (TQM)



Source: ISO 9001 Standards

- (1) **CUSTOMER FOCUS:** Optimized and effective processes result in improved customer loyalty and satisfaction.
- (2) **LEADERSHIP:** Employees engagement is critical and essential in ensuring a sustainable productivity in accordance with strategies and targets. A well-managed process improve consistency and promote cost-saving and continuous improvement.
- (3) **PEOPLE INVOLVMENT:** Building confidence in stakeholder by making responsibilities is necessary to manage processes clearly and optimizing performance.
- (4) **PROCESS APPROACH:** Defined and optimized processes eliminate wastes, reduce operational risks and improve the performance of the organization.
- (5) **SYSTEMATIC APPROACH TO MANAGEMENT:** All the processes must be managed as a system to get better efficiency⁶.
- (6) **CONTINUAL IMPROVEMENT:** Being able to adapt its activities and strategies to new market situations contributes to improve the performance of the organization and increase its flexibility and agility.
- (7) **FACTUAL APPROACH TO DECISION MAKING:** As data is well collated and analyzed, decisions are proper thought and made with clarity. Therefore, strategies are adapted to the objectives and the performance is reached.
- (8) **MUTUALLY BENEFICIAL SUPPLIER RELATIONS:** A strong relationship between the firm and its suppliers enhances productivity, reduce costs and encourages seamless operational practices.

The optimal performance is related to a good business sense that considers all the components and resources that are involved in its activities. Therefore, to ensure that the strategies of the firm are declined in every procedure, an objective assessment that uses a mixed approach must be set up to consider all the organizational, financial, human and technological resources.

⁶ A business should not focus its effort on just key processes. There is complementary processes that should be taken into consideration so as to lead to organization's effectiveness in achieving its targets and objectives.

4. How to use the process approach in internal auditing?

The overall objective of the approach is to propose a defined and clear formalism to model the processes and activities of the organization by dividing them into sub-processes, procedures and tasks. This paper analyzes how internal auditing using the logistic approach aims to a better understanding of the internal functioning of the processes. The objective is to propose some simple guidelines to add within the internal auditing practices in order to set appropriate methodological tools for risk assessment and to identify the appropriate performance indicators to attend optimized processes. The added value through this proposal is to propose a clear and coherent formalism to analyze the operational activities of an organization efficiently. But first, it is important to define the main concepts related to this approach.

4.1. Process

Tempony (2005) defined a process as all the activities with identified inputs creating a number of outputs with added value for the final customer. It encompasses a set of interrelated activities that are involved in the production of the deliverable of the firm. There are two interpretations that can define a large process: First, there is the business view that is represented by the synchronization of the operational activities that provide the deliverable. Secondly, there is the support system that represents the activities of planning, supporting and controlling the operational activities.

Modeling the process will highlight how activities are formed in the organization and what are the relevant indicators that insures how far the strategy of the organization is well declined within the procedures of all the stakeholders Davenport (1993). For internal auditors it's about to establish risk-based thinking, while modeling the processes, to identify and reduce undesired impacts of potential risks.

4.2. Sub-processes:

Sub-processes are the set of processes that contribute to achieving the final results of the large process. The result is the production of one or more deliverables (product or service) appreciated by different stakeholders (Customer, Supplier, financial institution...). A deliverable must respect some performance conditions and requirements. That's why a firm must identify some Key Factor of Success (KFS) of the sub-processes based on its strategic goals and strategic outcome's indicators.

4.3. Activity:

An activity regroups all the connected operational tasks that contribute to the realization of the deliverable of a process. It represents an intermediate level of division between the related process and the operational tasks. It allows to clearly monitor and control, by steps, the performance of the process and to separate its components by their nature as classified in section 4. A performance of an activity is measured by Key Factors of Progress (KFP). They include all the criteria that reflect the process requirements for an improved activity's result. **3.4. Task:** A task is a set of connected operational actions that participate in the realization of the result of an activity. It represents the final level and smallest unit of decomposition of a process. A task is described by the lever of action (LA) that affect the performance of a task. A lever of action is defined by local objectives (LO) which reflect the strategic objectives of the firm.

4.4. Performance Measurement of the process:

The strategic approach that should be used by internal auditors to measure the performance of a process is summarized in the following table:

Table 1. The principal's performance measurement of a process

PROCESS	1.What is the strategy? 2. what are the global strategic objectives (GSO)? 3.What are the strategic outcome's indicators?
SUB-PROCESSES	4.What are the key factors of success (KFS)? 5.What are the process objectives (PO)? 6.What are the key factors of process (KFP)?
ACTIVITIES	7.What are the key progress factors(KPF)? 8.What are the improvement targets?
TASK	9.What are the levers action?

Source: Author

According to ISO⁷ and IATF⁸ organizations, there a 8 keys steps to formalize and evaluate the components of a process. To simplify their application for internal auditors, we propose a framework that takes into consideration both the internal auditing approach and the process approach.

As a result, we propose this simplified guideline that must be followed while auditing a process:

Table 2. The guideline to audit a process

1/ Identify the inputs and outputs of the process	
INPUTS	What are the information data or physical flows that are put into the process to operate? Are they sufficient? What is the key knowledge required for implementing the process?
OUTPUTS	<i>What are the information data or physical flows that are delivered and produced by the process?</i> <i>Are they conforming?</i>
2/ Define the interactions between the sub-processes and meta-classes	
SUB-PROCESSES	What are the processes that are part of the large process? How they operate with each other? What are the interconnections between them?
META-CLASSES	What are the components of each process? What are the techniques and the tools used in the operational activities? What are the products that must be analyzed? And in how they depend to the operationalization of the identified processes?
3/ Determine the key performance indicators of the process	
TOOLKITS	Is there a procedural manual of how the process works?

⁷ International Organization for standardization

⁸ International Automotive Task Force

	Does the firm have a guide of good practices? How often the toolkits are deployed? Are they frequently updated?
PERFORMANCE STANDARDS ⁹	What are the requirements or expectations that must be met to be appraised on a certain level of performance? What are the applicable standards and current regulations?
4/ Identify the physical, financial and technological resources	
PHYSICAL RESSOURCES	What are the tangible items that are available and necessary for the process to function? How are the physical resources allocated to the different processes? What are the physical resources that are produced by the firm? What are the equipment that take part in the production process? Are they sufficient to insure an efficient and optimized processes?
FINANCIAL RESSOURCES	Does the firm proceed to a strategic planning of its financial resources? How does the financial direction ensure the effective use of the financial resources?
FINANCIAL RESSOURCES	How the different departments of the firm participate to budgeting? What is the period that covers a forecast budget?
TECHNOLOGICAL RESSOURCES ¹⁰	What kind of IT systems are more effective for the operational activities of the firm? What are the technologies used to produce, treat and control the data and information of the organization?
5/ Determine stakeholders and responsibilities	
STAKEHOLDERS	Who is the pilot that coordinates the operational activities of a defined process? Do corporate managers ask stakeholders about their long-term goals?
RESPONSIBILITIES	Does the firm have an actualized organigram of its employees? What are the tasks that need to get done by the actors of the process?

⁹ They are part of the International Standards for the Professional Practice of Internal Auditing.

¹⁰ It is important to underline that there are seven factors that should be considered while selecting a technological resource: the capital, Time, Tools and machines, energy, people and information.

6/Identify the risks and opportunities	
RISKS	<p>How are the risks evaluated?</p> <p>What are the processes that own the higher risks?</p> <p>How effective is the firm in analyzing and managing its risks?</p> <p>How sever are the impacts of the identified risks?</p> <p>Does the firm understand the main assumptions of its strategies and align its processes for preventing potential risks?</p>
OPPORTUNITIES	<p>Does the firm analyze its opportunities and threats while defining the strategy?</p> <p>Does the firm take into consideration the social and economic changes to readjust its targets?</p>
7/ Assess the results	
<p>Define the monitoring requirements that ensure that results are valid.</p> <p>Specify the moment at which monitoring is carried out and the results are evaluated.</p>	
8/ Make recommendations to improve the processes	
<p>Discuss with management of internal audit report, effectiveness of internal controls and issues in performing the internal audit.</p>	

Source: Author

5. Meta model of the proposed formalism for internal auditors:

The meta-modeling technique contributes to design the set of activities, procedures and targets to be executed in the appropriate chronological order and in accordance to legal and quality management practices.

Interestingly, it will help the internal auditors to translate the ‘*informal*’ requirements into formalized knowledge for a better deployment of the processes by the concerned stakeholders. Then the designed model will be shared and discussed with the executive management and directors to add all the adjustments related to management quality requirements and the specific procedures that must be incorporated into the new manual of procedures of the firm. This method will contribute to a better assessment of the different potential risks and, consequently for a continuous improvement of the processes. (Dellea, and al.,2002)

To adopt this technique of ISO9000:2000 standard (AFNOR, 2000) the following steps must be followed: the first step is to identify all the components of the process (inputs, outputs, products, stakeholders...) and the links between them. (Verb, subject, direct or indirect object ...).

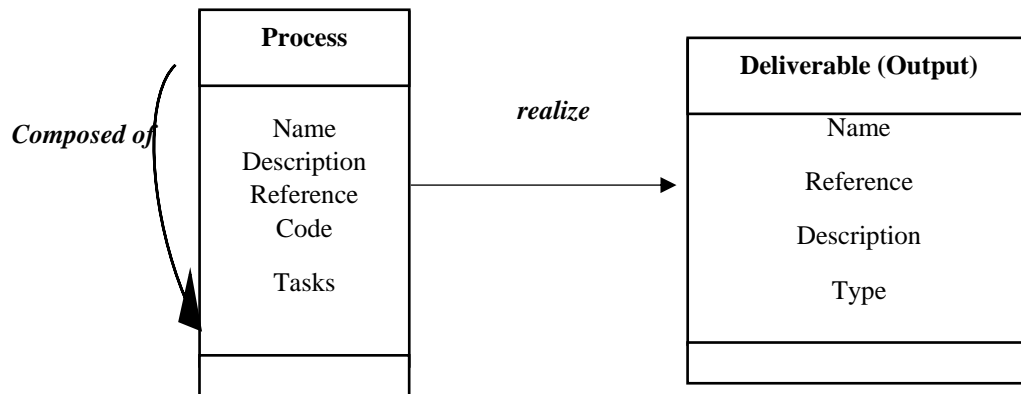
The second step is to model each concept and component by an UML¹¹ meta-class (Rumbaugh, and al., 1999). Then, the internal auditor must also formalize the links between the identified concepts and components through UML relationships.

The fourth step is about modelling the main constraints and restrictions that may affect the previous determined relationships.

For example, for meta-modelling a process with an object we have to mention the name of the two meta-classes; process and the object (for e.g.: deliverable); and the nature of the relationship between them and all the tasks and activities within the reviewed process.

¹¹ Unified Modelling Language is the formalization of various concepts of technique or tool through class of objects and also the relationships between them.

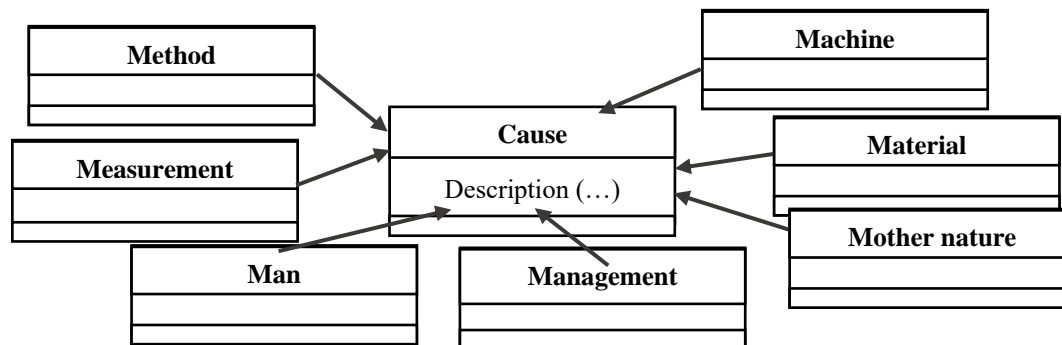
Figure 2: The meta-modelling of the link between “Process” and “Deliverable”



Source: Author

To develop, the meta-model must integrate quality modelling theories based on approved principles. There is the common 5M (or 7M) principle proposed by Ishikawa (1963). It's a risk management model used to meta-model the meta-class “CAUSES” in seven sub-types: “Man”, “Machine”, “Method”, “Materiel”, “Measurement”, “Management”, “Mother nature” (see Figure 3).

Figure 3: The (7M) theory integrated to the metal-model of the ISO 9000:2000 standard.



Source: ISO 9000:2000 Standard

Any changes on those 7M may affect the QMS¹² (Processes, resources, activities ...), that's why they must be controlled and carried out as a part of the approach. The internal auditor has to determine the strategic objectives and control the consequences of each change with its impact on the required resources and responsibilities. The aim is to reduce problems and negative impacts that could arise during any change (Anticipative approach).

There is also the general system theory used in manufacturing Engineering developed by (Mayer, and al., 1995). It considers that a product is defined by 3 attributes: Space, Shape and time and it transforms at least two of these above-mentioned attributes. Then, for an efficient risk assessment and a relevant analysis of the processes we will add a meta-class “(PRODUCT / PROCESS) REQUIRMENTS” that can be divided in sub-types meta-classes: “Time requirement”, “Shape Requirement” and “Space Requirement”.

The third part consists to add all the components of the process by classifying them as required by AFNOR¹³ FD X50-176: Process Management / Process of realization / Support Process .

The process Management encompass all the processes that contribute to the determination of the strategy, the deployment of the objectives and the allocation of resources. The second

¹² Quality Management System

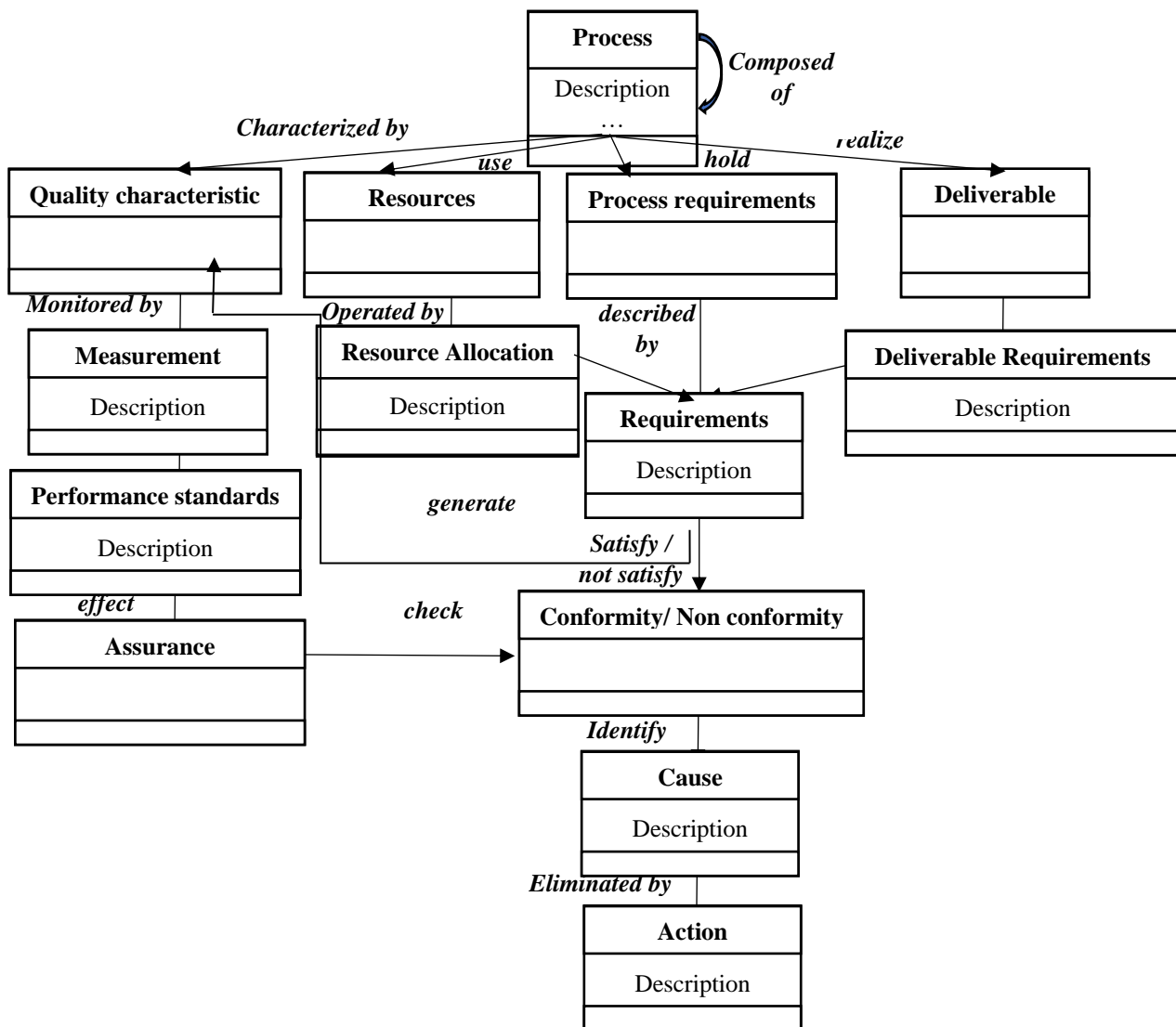
¹³ Association Française de normalisation

process of realization involves all the categories of sub-processes that take part in the production of the product or service provided by the firm to the final customer. Finally, the support process provides all the resources that are necessary for the operationalization of the processes mentioned above.

All the prior sections have shown that all the components and concepts of a process are interconnected and their assessment is related to the respect of all the requirements that reflect the global strategy and the strategic objectives of the firm.

The design of this interconnectivity facilitates the identification of non-conformities and analyze their impacts on each component of the related process.

Figure 4: Meta model of the proposed formalism of auditing a process expressed in UML Measurement and process approach.



Source: Author

A process is characterized by quality characteristics that are monitored by measurement indicators that are based on performance standards. It uses resources that are operated by resource allocation in order to realize a deliverable that must be conformed to “Deliverable requirements”. The internal auditor has to analyze all those aspects in order to improve the functioning of the operational activities of the firm and to evaluate the conformity of the process with the strategic requirements. The result of this approach is to suggest the right actions to face the identified causes of non-conformities.

6. Conclusion:

Internal audit is an internal monitoring function in the firm that proposes an adequate system of internal control based on a risk assessment and a developed analysis of the internal functioning of the processes of the firm. This work has illustrated that an efficient internal audit requires, first of all, declining the process of these elements: “large process, subprocesses, activities and tasks”. Then, it is about to set up the different key performance indicators that will measure the performance of each level of the process. Furthermore, internal auditors have to analyze and define all the characteristics of the operational activities, resources of the process and the outputs in order to identify the relevant risks.

This mixed approach formalizes a guide to be followed while analyzing a process. It provides a model that reflects the interdependence between all the components of the process so as to identify the risks and actions to be set up to eradicate or manage those risks.

Many perspectives can be investigated within the proposed approach of internal auditing. Indeed, the model must be applied on a real case of study in order to appreciate the impact of our mixed approach on the key performance indicators of each process. Also, the approach can be integrated in other subject areas such as “Risk Management, External auditing ...”

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