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Operational Risk, Applying the Mosler Methodology in Production Sector in Mexico

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Abstract: ***Using the Mosler method in the analysis and risk assessment applied to six Tlaxcala State Sme´s with high economic activity of the textile industry, plastic and manufacturing, the aim of this work was to identify, analyze and evaluate variables such energy supplies, environment, geographical location, infrastructure, security and protection systems, external and internal environment and transport. For data analysis, a database developed in Microsoft Excel 2010 has developed, in order to obtain promptly results and this to know the kind of risks to which the result was very low and small.***

Keywords: Mosler Method, Analysis of Risk, Risk Management

1. Introduction

Those responsible for security in organizations face the increasing challenge of directing efforts towards prevention and protection of human, material and intangible assets that have been entrusted to guard. The main challenge will be to act on culture, building trust, aligning the structure to organizational goals, and transforming strategies into results to people. This implies a deeper knowledge of the mission, vision and values of the organization, in order to develop security policies that will contribute to meeting the objectives and entrench a culture of corporate security [1].

Certain organizations (industrial , automotive , biochemical, pharmaceutical, services, processes) do not have an area for such analysis, but their quality processes (those with certifications in ISO standards or other quality system), are using extract methodologies to prevent risks through only milestones. In particular being more tied to compliance with the rule that manage the threats of the entire system of the company. Perhaps because they believe this approach is purely macroeconomic or perhaps ignorance of its scope: although it is a little resistance to want to address the issue, as doing comparative and decide to self- analyze, is where individuals we face ourselves, our fears, frustrations and securely transferred to this company, they will face economic losses, leaks in process times, loss of human talent deteriorating institutional image, litigation, among others. The reality is that it would be more prudent for any organization to a process of risk assessment, as it is technically defined , and also consider risk assessment , involves assuming that you are exposed to an event occurring , and if it happens , or what impact it can have consequences [2].

This implies awareness and management tools, techniques and modern management practices, applicable safety as a way to improve their proposals, projects and rational decision-making processes. It also requires leadership skills to generate change, motivating people, engage them and ensure their participation in the processes of transformation. Parallel tasks should promote coordination, organization, communication and control, focusing the responsibility of achieving compliance objectives and safety goals through efficient and effective management to maximize the performance management [3].

Risk management seeks to achieve knowledge, as realistic as possible, of any circumstances that could affect the processes or services, causing damage or loss, so that priorities requirements can be set and allocated safety for dealing with such situations conveniently. These risks can be very diverse in nature, and particularly important in the field of information technology, due to its large amount of overlap in regulating services in today's society [4].

To this end, the Risk Management relies on Risk Analysis under the process of identifying, through study and evaluates the different variables involved, potential events affecting the objectives of an organization and its consequences. Therefore, a prediction of the future based on the past history and careful analysis of events takes place. It does not replace empirical experience; on the contrary, often large amount of information is obtained from expert opinions. The judgments take the form of a probability distribution, and follow all the rules of traditional probability theory [5].

The Risk Management has become very important because the events that we never thought would happen have happened. Today we live in a fully globalized economy, where things happen in a country, have domino effect in several nations. The risk management is an element that enables the monitoring of the financial health of the company. It also allows predicting and anticipating events. Thus, organizations are alert and track who wanted to avoid certain situations to occur, and also to those who want to drive, that happen within your company. This strategy allows one to completely mitigate or manage risk as time passes, because some things are inevitable [6].

To manage or administer something, always a history of prior knowledge provides risk analysis and it is complemented by other steps for complete management. Risk management at first provides the risk analysis: defining the objectives to follow or change; alternatives are developed, implemented and a priority to go before or during each stage of the ongoing project is assigned. The identification, analysis, evaluation, treatment and monitoring of risk is a very complex process that also requires: time, cost and resources. The main objective of risk management is to reduce the probability and impact of events adverse to the company, business or institution. It is necessary to emphasize the formalization of the risk management as a discipline or branch. Currently, security officer, as well as carry out security, should: manage and analyze the risks, and in order to reach compliance, a definition of the mission and the vision is also required. A thorough risk management is essential and not sees it as a process of improvement. The typical risks facing organizations are: do not have a good administration there of; loss of productivity or business, due to downtime; liability for security breaches that expose the information of customers; violations of rules and the inability to fend off demands, because of inadequate preservation of information. Only risks stemming from events unrelated to the human factor, such as a flood or an earthquake, are in a scale - the highest level of danger - but no, it does not have a recovery plan and if we anticipate the same, the level of uncertainty and impact, is diminished since we are prepared for an extreme situation like that. Moreover, many of the computer risks are caused by operational mishaps, inadequate processes, and failure to comply with regulatory requirements or other factors that can also be controlled [7].

You need to be aware of risk management as a key sector because it depends on our information, services or products which they provide is used to carry out the mission and vision, as well. Without it nothing is done, but if you have and do not know what to do with it, not useless. That is why the process of management or administration should be: full, multiple factors: physical environmental, economic, social, political, institutional, organizational, permanent and cyclical; if any step is conducted in a superficial, incomplete or not note form, considering that the measures are already implemented and need feedback [8].

In Mexico risk management is practiced since the early 90's, as is the case of IBM; but due to the international crisis of 2009, he saw the need for a system of effective risk management. However, it is observed that risk management practices require urgent review.

Mexican politics of hazardous waste is not a particular answer to a problem arising in terms especially Mexicans, but harks back together, sometimes in a shot, the legal texts, definitions and foreign technical solutions [9].

Vulnerability is a key to understanding the concept of disaster risk and therefore to propose strategies and reconstruction plans. The vulnerability the daily builds individuals, families and institutions through the decisions and actions they take and are crucial for the sustainability of the habitat and livelihoods. The vulnerability does not only depend on the coexistence of populations with threats, but that are generated in larger geographic areas: regional, national and even global [10].

In the survey conducted by PricewaterhouseCoopers (PwC) in March 2010, it was noted that entrepreneurs focused on allocating resources for risk analysis activities (97 %) and prepared in order to know events address systemic risks and high impact (97%). These are the areas in which (Chief Executive Officer) CEO's or responsible management and administrative direction focus their management strategies and risk management: a) Resource allocation to risk analysis activities 97 %. b) Preparation to address systemic risk and high impact events 97 %. c) Creating accountability structures 95.3 %. d) Reassessment of levels of risk tolerance 94.3 %. e) Collaboration with suppliers in the supply chain to manage all risks 93.4 %. f) Integration of risk management capabilities in the business units 89.7 %. Some of the companies that had no such problems are: IBM, BBVA Bancomer, HP, Red One, Neoris, Unisys, Hildebrand, Softtek Bursatek and Mexis.

2. Methodology

The Mosler method aims identification, analysis and evaluation of factors that may influence the manifestation of a risk. It was applied to six Sme's the State of Tlaxcala, the information obtained will permit the estimation of risk class. The method is sequential and each stage is based on data obtained in the phases that precede it. In Microsoft Excel 2010, developed a database where the definition of risk was established.

First phase: Definition of risk. This phase aims at identifying risk, defining its purpose and scope, to differentiate it from other risks. The procedure is by identifying its characteristic elements. These are: a) The right. b) Damage (table 1).

Table 1: Definition of risk

Risks
Energy supplies
Environment
Geographic location
Infrastructure
Safety and protection systems
External and Internal environment
Transport

Second stage: Risk analysis. In this phase was the calculation criteria then we will risk evolution. The procedure consists of:

a) Identification of variables.
b) Analysis of the factors obtained from the variables and see how far influence the criteria considered, quantifying the results according to Penta scale, described below:

"F" criterion function. The negative consequences or damage can alter the activity differently:

Very bad 5,
Gravely 4
Moderately 3
Mildly 2
Very slightly 1.

"S" Criterion Substitution. Goods may be substituted:

Very difficult 5,
hardly 4
without much difficulty 3
Easily 2
Very easy 1.

"P" Criterion Profundity. Disturbance and the psychological effects that would occur in varying degrees, by its effects on image:

Serious disturbances. 5,
serious disturbances 4
Limited disturbances 3
minor disturbances. 2
very slight disturbance 1.

"E" Criterion Extending. The extent of damage, depending on its size or scope, can be:

International in scope. 5,
from national character. 4
From regional. 3
From local. 2
From individual character. 1.

"A" Criterion of aggression. The probability that the risk is manifest:

Very High 5,
High 4
Average 3,
Floor 2,
Very low 1.

"V" Criterion Vulnerability. The likelihood of damage is:

Very High 5,
Added 4
Average 3,
Floor 2,
Very down 1.

Third stage: Evaluation of risk. It aims to quantify the risk considered (table 2). The procedure consists of:

a) Calculation of the risk character "C". This is done with the data obtained in the previous phase and applying equations (1)-(3):

$$C = I + D \quad (1)$$

$$I = \text{Importance of happening} = F \times S \quad (2)$$

$$D = \text{Damages} = P \times E \quad (3)$$

b) Calculation of the probability "P". For which might use the data from the second phase using the equation (4):

$$Pb = A \times V \quad (4)$$

c) Quantifying the risk concerned. Multiplying the values obtained in a) and b) using the equation (5):

$$ER = C \times Pb \quad (5)$$

Table 2: Risk Assessment

Risk character "C", C=I+D			Probability "P"
I= Importance of happening = F x S			Pb= A x V
D= Damages = P x E			
I	D	C	Pb
15.5	9.4	24.9	18.2
6.2	3.1	9.3	4.8
4.9	2.3	7.1	3.1
3.2	3.1	6.4	4.5
15.1	10.0	25.1	12.2
11.2	9.2	20.4	9.0
18.2	10.1	28.3	11.4

Fourth phase: Calculate risk class. This class aims to classify the risk according to the value obtained in evolution. This value will be between 2 and 1250 and applying the table notes below. It has: Value ER Hazard Class: 2-250 Very Low, 251 -500 Small, 501 - 750 Normal, 751 - 1,000 1,250 High-Grande1001 (Table 3).

Table 3: Calculation of the risk class

Fourth phase: Calculate risk class.
Small
Very low
Very low
Very low
Small
Very low
Small

3. Results

The risk classification variable energy supply, analyzing and evaluating subvariables: acetylene, water, diesel, electric power high voltage, low voltage electricity, gas, petrol, internet, lubricants, material aid, solder, oxygen , paper, chemicals, spare parts and electrical parts, fall into a risk quantification 453.0 points giving an evaluation criterion 251-500, considering a class Small risk.

The variable environment, analyzing and evaluating subvariables: tornadoes, rain, forest fires, agricultural fires, extreme cold, fog, flooding and pollution fall into risk quantification 44.5 points, giving an evaluation criterion 2-250, considering a class of very low risk.

The variable geographic location, analyzing and evaluating subvariables: amount of traffic, location, access roads and seismic zone, risk quantification 21.8 points with a standard

assessment of 21.8 points, with an evaluation criterion 2-250, considering a very low risk class.

Infrastructure variable, analysis and evaluation of the sub-variables: electrical, ventilation, furnishings, equipment, machinery and equipment, maintenance of buildings and laboratories, plumbing and drainage network, exterior lighting, interior lighting, rain water, telecommunications, network of lands and rod, the risk quantification is 29.0 points, an evaluation criterion 2-350, considered a very low risk class.
The variable security and protection systems in their analysis and evaluation of subvariables alarms, closed circuit color code, health emergency, equipment vs fire protection equipment, fire extinguishers, fire safety manuals, first aid, hiking evacuation, emergency exits, voluntary insurance (IMSS), signs and drills, risk quantification is 307.5 points, an evaluation criterion 251-500, aken Small class risk.

In the variable external and internal environment, in their analysis and evaluation of subvariables: wildlife, traffic, PEMEX pipeline, road traffic communication, railway communication pathways, newsstands (safety) and places of amusement, quantification of risk was 183.3 points, with a 2-250 evaluation criterion considered in a class of risk very small.

Finally, the transport variable, analysis and evaluation of the sub-variables: physical and mechanical condition of transport units, emergency exits units of road signs, external transport, public or collective and internal buses, risk quantification was 322.8 points, 251-500 evaluation criteria considered in a risk class Small.

4. Conclusions

In risk management, if holding a good risk analysis, areas of opportunity are discovered, which leave benefits that become profitable product or services offered by a company, an institution or agency.

The managing risk is not to make improvements, but be prepared for the next technological and global change. More proper, changes in international market and therefore allowing adaptation to the changes. The assistance has to manage risks is based on methods derived from the efforts of people who have already faced problems of integrity, availability, reliability, economic loss, as well as resources and quality, among others. Processes as a means to increase flexibility and prevent threats to the technological and physical infrastructure are formulated; also as a means of helping the company achieve its development goals.

Software tools allow flexible application deployment to any other analysis - risk assessment, applying the methodology Mosler any company in the region, allowing us to display instant results for the contingency plan, minimizing the risk. In this regard, it is noted that in the State of Tlaxcala, the kind of risk is very low and the small range.

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