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In the first article we present, *A methodology to evaluate the safety-based witch ISO 25010:2011*, by MEX-ALVAREZ, Diana Concepción, HERNANDEZ-CRUZ, Luz María, ORTIZ-CUEVAS, Nancy Georgina and BARRERA-LAO, Francisco Javier, with adscription in the Universidad Autónoma de Campeche, as the next article we present, *Corruption contagion as a sociocultural phenomenon: An agent-based model*, by VIIANTO, Lari Arthur, QUINTERO-ROJAS, Coralia Azucena and ALVARADO-VÁZQUEZ, Erick Alejandro, with adscription in the Universidad de Guanajuato, as the next article we present, *Proposal for a Public Policy in Reference to NOM-035-STPS-2018 and SARS-CoV-2/ COVID 19* by CARMONA-GARCÍA, Laura Georgina, LÓPEZ-GUZMÁN, Lorena Araceli, AGUIRRE-RODRÍGUEZ, Jaime and NÚÑEZ-NÚÑEZ, José Alonso, with adscription in the Universidad Autónoma de Chihuahua, as the next article we present, *Procedure for the elaboration of institutional policies on University social responsibility*, by PÉREZ-BRAVO, Julia, with adscription in the Universidad Autónoma de Querétaro.

Content

A methodology to evaluate the safety-based witch ISO 25010:2011

Una metodología para evaluar la seguridad basada en la ISO 25010:2011

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Abstract

This paper proposes a methodology to evaluate the security of a web portal based on the international standard ISO 25010:2011. The methodology includes an evaluation instrument, a table of criteria and the formulas necessary to calculate the five security sub-characteristics. Subsequently, the evaluation is executed in the case study "Sistema Institucional de Seguimiento de Convenios" of San Francisco de Campeche as planned, obtaining satisfactory results.

ISO/IEC 25010, Product Quality, Software, SecurityAbstract

Resumen

El presente trabajo propone una metodología para evaluar la seguridad de un portal web con base en la norma estándar internacional ISO 25010:2011. La metodología incluye un instrumento de evaluación, una tabla de criterios y las fórmulas necesarias para calcular las cinco subcaracterísticas de la seguridad. Posteriormente se ejecuta la evaluación en el caso de estudio Sistema Institucional de Seguimiento de Convenios de San Francisco de Campeche según lo planificado, obteniendo resultados satisfactorios.

ISO/IEC 25010, Calidad del producto, Software, Seguridad

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† Researcher contributing as first author.

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1. Introduction

With the growing demand for IT, problems have also arisen that compromise people's IT security (Avilés, 2015). Because of this one of the primary objectives is the development of applications that meet the appropriate security quality standards.

Software quality refers to the degree to which the software possesses a combination of desired attributes (Blas *et al.*, 2016). There are several models to assess software quality, however, ISO 25010:2011 is a comprehensive model that covers important characteristics such as structure, expression, definitions and relationships (Shiratuddin, 2015).

ISO 25010:2011 defines two quality models (Figure 1):

Quality-in-use model: it is composed of five characteristics related to the degree to which a product or system can be used by specific users and context of uses.

Product quality model: it is composed of eight characteristics related to the static properties of the software and the dynamic properties of the computer system. (Estdale & Georgiadou, 2018)
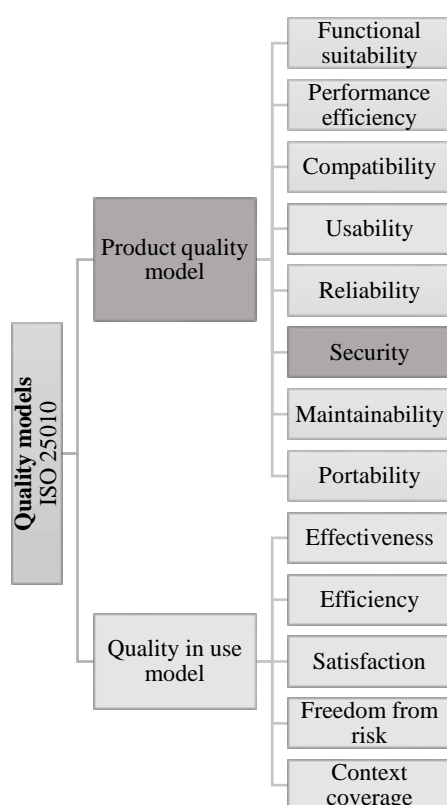
Figure 1 Quality models ISO 25010
Source: Prepared by the authors

The product quality model will be addressed because within its characteristics, it allows evaluating the security section and its sub-characteristics (Figure 2) in a software product (Sekarini *et al.*, 2020).
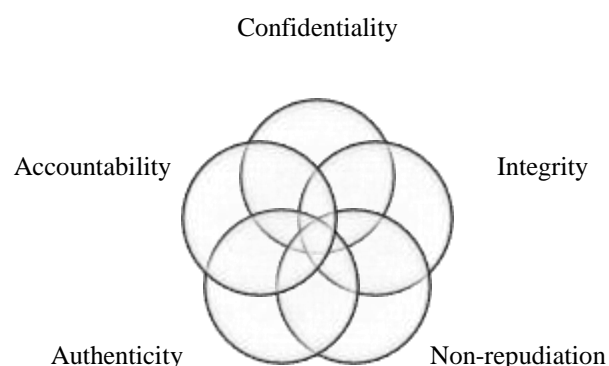
Figure 2 Safety sub-characteristics in Product Quality Model, ISO 25010
Source: Prepared by the authors

Within the product quality model, security refers to the ability of the software product to achieve the protection of users' information and data, where no one, except those authorized, can read or modify them. It presents the following sub-characteristics (ISO/IEC, 2011):

Confidentiality. It is used to evaluate the degree to which a system allows only authorized users to access data.

Integrity. It is used to evaluate the degree to which the system prevents unauthorized access that could modify programs or data.

Non-repudiation. It allows evaluating the degree to which actions or events can be proven to have taken place in the system, so that such actions or events cannot be subsequently repudiated.

Authenticity. Allows to evaluate the degree to which the identity of a subject or resource can be proven.

Accountability. Used to assess the degree to which an entity's actions can be traced unequivocally.

The "Sistema Institucional de Seguimiento de Convenios" (SISC) is a web application that stores the scanned copies of the agreements signed by the "Universidad Autónoma de Campeche" (UAC) with other institutions, facilitating the process of consultation and storage of the results that have been generated in the exercise of the agreement, thus offering a follow-up of the linkage of the UAC with the various institutions (Mex Alvarez *et al.*, 2020).

The main objective of this work is to identify whether a web portal complies with the product quality characteristics in its security category defined in the ISO 25010 standard by applying the methodology to the case study defined above as SISC for its subsequent adjustment and improvement, and thus be able to benefit the university community, future generations and research.

The central hypothesis of the case study presented is that the SISC does not comply with most of the security sub-characteristics of the ISO 25010 standard.

The methodology includes an evaluation instrument, a table of criteria and the formulas necessary to calculate the sub-characteristics of security which will help to resolve the central hypothesis of the research.

2. Methodology

The proposed methodology is based on empirical methods consisting of techniques and instruments that require the participation of a target population. (Rubin & Dana, 2008).

The empirical method contemplates the design and application of a data collection instrument that evaluates indicators and metrics obtained from the collection of information from primary sources.

The methodology proposes four phases for the evaluation of a web site considering the Security sub-characteristics in the Product Quality Model, ISO 25010 Standard.

Each of the phases contains a series of actions that guide the conduct of the study.

In Figure 3, we can observe each of the phases with their activities.
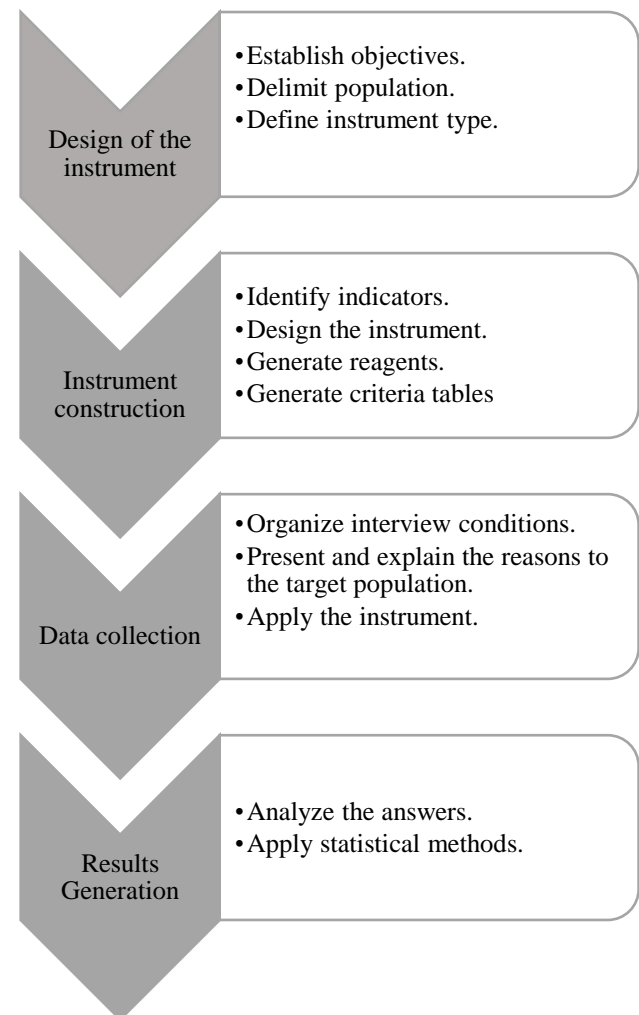
Figure 3. Study phases with their activities to evaluate the security of a web site with the ISO 25010
Source: Prepared by the authors

Each of the phases is described below.

2.1. Design of the instrument

2.1.1. Establish objectives

The objectives of the evaluation are twofold:

– To know the degree of compliance of the product quality subcategories of ISO 25010 in its security category.
– Determine according to the degree of compliance of the subcategories if it is an admissible software product or not.

2.1.2. Delimit the population

The target population is the three web site developers because security issues are considered during the software development stage.

2.1.3. Define instrument type

Due to the fact that the population is a small group and that the information to be obtained is very precise according to the requirements of the standard, the structured interview was chosen as a technique for data collection, which consists of collecting information through a direct communication process between the interviewer and the interviewees, in which the interviewee responds to questions previously designed according to the dimensions to be studied, posed by the interviewer (Bernal, 2010). According to Corbetta (2007), it was decided to conduct a structured interview where the researcher carries out a previous planning of all the questions he/she wants to ask. Questions are prepared and coordinated by a sequenced and directed script. The interviewee will not be able to make any comments or appreciations. The questions will be of a closed type and it will only be possible to affirm, deny or answer a concrete and exact answer about what is being asked.

2.2. Instrument construction

2.2.1. Identify indicators

As mentioned above, ISO 25010 in its safety category establishes five subcategories to establish the instrument's indicators. Based on the above, each of the subcategories was considered as a basis. Table 1 shows the subcategories of the Safety characteristic of the ISO 25010 Standard with the corresponding evaluation indicator and the section of the data collection instrument to which it relates. (França & Soares, 2015)

Product Quality Subcategory for the Safety Feature	Indicator
Confidentiality	The degree to which the system protects unauthorized data and information from accidental or deliberate access.
Integrity	The degree to which the system can prevent unauthorized modifications to data or information.
Non-repudiation	The degree to which the system proves the performance of actions or events, so that such actions or events cannot be subsequently denied
Accountability	The degree to which the system can unambiguously track the actions of an entity.
Authenticity	The degree to which the system demonstrates the identity of a subject or resource.

Table 1. Relationship of subcharacteristic/indicator
Source: Prepared by the authors

2.2.2. Design the instrument

The data collection instrument was divided into 5 sections, so that each section represented 25% of the total. Each section was planned to consist of 4 questions for a total of twenty. The questions, as analyzed, were dichotomous in order to preserve the objectivity of the interviewees. Each section of the questionnaire has a sub-characteristic and an indicator associated with it.

Table 2 shows the relationship of each security subcharacteristic defined in ISO 25010 with the questions of the data collection instrument and the percentages they represent.

Section of the instrument according to the subcategory of Security	Number of questions associated with the indicator	Percentage of total questions
Confidentiality	1-4	20%
Integrity	5-8	20%
Non-repudiation	9-12	20%
Accountability	13-16	20%
Authenticity	17-20	20%

Table 2 Instrument section, question number and total weighting
Source: Prepared by the authors.

2.2.3. Generate reagents

According to the instrument design shown in Table 2, the items were generated to obtain dichotomous answers of true or false.

1. Does the system offer the user the option of data privacy?
2. In the system, is there a way for unregistered users to access the data of registered users?
3. In the system, is there a way for the web site managers to view the personal information of the users?
4. Does the system store in the database an access control?
5. Does the system consider an authenticity step?
6. Does the system ask for a password confirmation when changing user data?
7. Does the system send any notification to the user when there is a data modification?
8. Does the system consider a hierarchy in the access of various data among the site managers?

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9. Does the system stores the contact messages that have been sent by users?
10. Does the system sends a confirmation notification when a message is sent?
11. Does the system store in the database a log of the registered items?
12. Does the system consider any kind of requirement to send a message to the contact?
13. Does the system have a regulation?
14. Are the users made aware of the rules and regulations?
15. Are users made aware of the consequences of violating the rules and regulations?
16. If the system has regulations, do the algorithms identify the users who do not comply with these regulations?
17. Does the system allow the connection of the same user in two different access instances?
18. Does the system provide an assistant for the registration of new users?
19. Does the system contemplate that there cannot be two accounts with the same e-mail or user name, but different data?
20. Does the system contemplate the e-mail verification step, when a user is generated?

2.2.4. Generate criteria tables.

A scale was generated to classify the acceptance of the percentage obtained of the total positive criteria. Table 3 shows the proposed ranges and criteria.

Criteria	Range of positive responses
Ineligible	0 <= X < 40%
Minimum allowable	40 <= X < 60%
Admissible	60% <= X < 90%
Excellent	90 < X <= 100%

Table 3 Criteria classification according to percentage of positive responses
Source: Prepared by the authors.

2.3. Data collection

2.3.1. Organize interview conditions

As a case study of the present work, the participation of the three developers of the Institutional Agreement Monitoring System was requested for a group interview to obtain the information. Due to the global contingency due to Covid-19, the interview was conducted virtually with the Meet application.

For the interview, the developers were contacted via e-mail, explaining the reason for the meeting, who would be conducting the interview, the date and time, as well as the link to access the interview.

Present and explain the reasons to the target population.

After starting the connection through the Meet application, the interviewer explained to the interviewees the objective of the interview, which is to know if the system is an admissible software product or not, according to the degree of compliance with the subcharacteristics of ISO 25010.

2.3.2. Present and explain the reasons to the target population

The interviewer explained to the interviewees how the interview is composed, how many questions are included and of what type.

2.3.3. Apply the instrument

The interviewer proceeded to read the questions to the interviewees and asked for their affirmative or negative answers. In some questions it was necessary for the interviewer to elaborate a little more on the question. The interviewees, for their part, gave some answers by showing the system and its components.

2.4. Results Generation

2.4.1. Analyze the answers

After having responded, the results of which were as follows (Table 4).

Section of the instrument according to Security subcategories	Number of positive responses	Percentage of total questions
Confidentiality	2/4	10%
Integrity	2/4	10%
Non-repudiation	0/4	0%
Accountability	0/4	0%
Authenticity	2/4	10%
	Total	30%

Table 4 Subcategory ratio with respect to positive SISC responses
Source: Prepared by the authors.

Analyzing the results obtained, we observe that in the items of confidentiality, integrity and authenticity, out of 4 questions only 2 were positive, contributing 30% of the total percentage of questions.
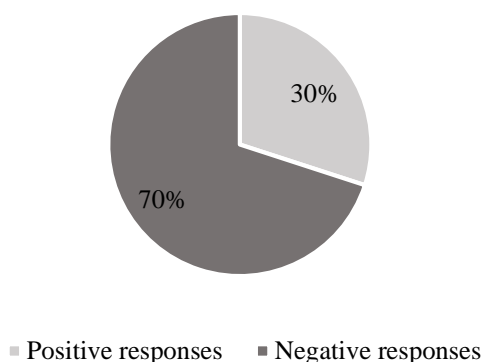
Graphic 1 Percentage of SISC responses
Source: Prepared by the authors

2.4.2. Apply statistical methods

According to the results shown in Graph 1, only 30% of the safety questions were met and 70% were not favorable. According to Table 4, on the classification of acceptance of criteria, its classification is in the range of unacceptable. The above leads us to conclude that the degree of compliance with each indicator is as shown in the table 5.

Indicator	Degree of compliance
Degree to which the system protects unauthorized data and information from accidental or deliberate access.	50%
Extent to which the system can prevent unauthorized modifications to data or information.	50%
Degree to which the system tests the performance of actions or events, so that such actions or events cannot be subsequently denied.	0%
Extent to which the system can unambiguously track the actions of an entity.	0%
Degree to which the system demonstrates the identity of a subject or resource.	50%

Table 5 Ratio of indicator/degree of compliance
Source: Prepared by the authors
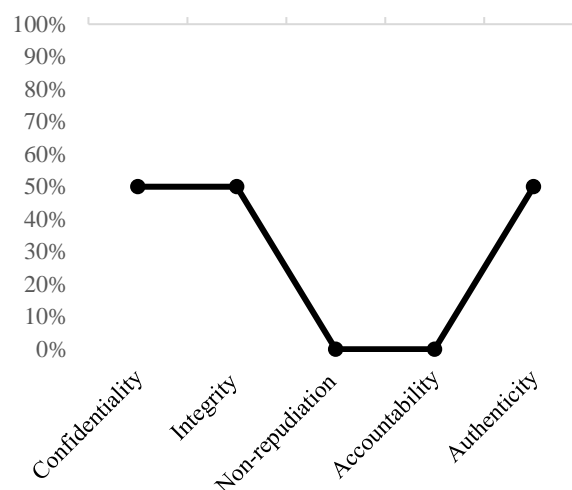
Graphic 2 Percentage of compliance by subcategory
Source: Prepared by the authors

3. Conclusions

The hypothesis stated at the beginning proved to be true, since the study showed that 70% of the questions on security were negative, classifying the Institutional Agreement Monitoring System as ineligible.

The security evaluation showed that it is necessary to reinforce the protection of unauthorized data and information against accidental or deliberate access, as well as to prevent unauthorized modifications to data or information, in addition to improving the monitoring of the identity of a subject or resource.

However, the characteristics that require complete attention are those related to non-repudiation and responsibility, therefore, it must be considered that the user in case of an error can deny performing actions or events later, on the other hand, it is essential to generate a regulation on the management of the system.

4. Thanks

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Corruption contagion as a sociocultural phenomenon: An agent-based model

El contagio de la corrupción como fenómeno sociocultural: Un modelo basado en agentes

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Abstract

Corruption is a social problem that seriously affects the functioning of society and in some cases, it is even perceived as an acceptable social behavior. The acceptance or rejection of corruption depends both on the own judgment and on the observed behavior in the environment; so that corruption can be spread or eradicated through social interaction. In this work, we study the convergence dynamics of society towards honesty in view of the implementation of two mechanisms: the modification of the individual perception of corruption; and the complaint of corruption. Since corruption is a complex socioeconomic phenomenon, we study it from the perspective of Agent-Based Modeling. The framework of our analysis is corruption in public administration, which is the one that has the most incidence in Mexico. We found that the mechanism that most favors the eradication of corruption is the complaint. Results also suggest that societies can converge towards honesty even when initial corruption is high, but not majority. Unfortunately, the low credibility in the system discourages reporting, so effective implementation and monitoring of reporting, together with fostering social awareness that corruption affects us all, should be promoted.

Corruption, Diffusion, Agent-based models

Resumen

La corrupción es un problema social que afecta seriamente el funcionamiento de la sociedad y en algunos casos incluso percibida como una conducta social aceptable. La aceptación o rechazo de la corrupción depende tanto de la valoración individual como de la conducta observada en el entorno, por lo que puede esparcirse o erradicarse mediante la interacción social. En este trabajo estudiamos la dinámica de convergencia de la sociedad hacia la honestidad ante la implementación de dos mecanismos: la modificación de la percepción individual de la corrupción y la denuncia. Como la corrupción es un fenómeno socioeconómico complejo, se estudia desde la perspectiva de la Modelación Basada en Agentes. El marco de nuestro análisis es la corrupción en la administración pública, que es la que más incidencia tiene en México. Los resultados sugieren que el mecanismo que más favorece la erradicación de la corrupción es la denuncia. Además, las sociedades pueden converger hacia la honestidad incluso cuando la corrupción inicial es elevada, pero no mayoritaria. Lamentablemente, la baja credibilidad en el sistema desalienta la denuncia, por lo que se debe impulsar la implementación y seguimiento efectivo de la denuncia, además de fomentar la toma de conciencia social de que la corrupción nos afecta a todos.

Corrupción, Difusión, Modelos basados en agentes

† Researcher contributing as first author.

Introduction

Corruption is a social problem that seriously affects the functioning of society as it increases the prices of goods and services and violates rules, laws, positions, and functions. (Malem Signo, 2002). In addition, it generates anguish, onerous expenses, deterioration of self-esteem, distrust, insecurity, cynicism, discouragement, and loss of opportunities (Rodríguez Estrada, 2007). Its economic effects are in general considered negative since they generate all kinds of distortions (Della Porta and Vannucci, 1997; Heywood, 1997).

In some cases, corruption is so pervasive that it is seen as tolerated and to some extent as an accepted social behavior. This distorts the rule of law and creates clientilistic privileges, so it is very important for society to combat it. To design adequate public policies, it is necessary to understand the dynamics behind the acceptance of corruption as a social norm; this would help to identify the mechanisms that can promote social convergence towards honesty.

In this contribution we study the dynamics of convergence of society towards honesty in the face of the implementation of two mechanisms: the modification of the individual perception of corruption and the reporting of the corrupt act.

The acceptance or rejection of corruption is a social norm that depends both on individual valuation and on the behavior observed in the immediate environment, so it can be spread or eradicated through behaviors learned through social interaction between individuals and between them and its environment. Then, corruption can be characterized as a complex social phenomenon; thereby, we approach it from the perspective of Agent-Based Modeling (MBA).

The MBA is a form of computational simulation that allows the creation, analysis, and experimentation with artificial societies of heterogeneous agents. This allows us to study the way in which the interactions between agents, and between them and their environment, give rise to the behavior patterns observed in the real world (Hamill and Gilbert, 2016).

The framework of our analysis is corruption in public administration, so we will build a virtual society made up of two types of individuals: citizens or administered, and officials or administrators. The intra-group and inter-group interactions generate dynamics that favor the propagation or eradication of corrupt behavior through a "contagion" process that consist of the assimilation of observed social norms.

We consider variables such as the complaint and the effectiveness of the complaint as mechanisms that limit the spread of corruption and influence the dynamics of social convergence towards honesty. The results of the simulations indicate that complain is the mechanism that most favors the eradication of corruption; however, it has little impact when corruption is too widespread.

The rest of this article is organized as follows. Section 1 delimits the concept of corruption we use. Section 2 presents the theoretical basis of the model and the methodology. In section 3 we develop the agent-based model. Section 4 discuss the results of the model simulations under various scenarios. Section 5 presents the conclusions of the analysis.

1. Corruption

Corruption is a complex social phenomenon that encompasses various dimensions, so its definition is not unique. For example, Nye (1967) defines it as "an aberration of the normal position of a public official in favor of private benefits, family or friends." Ayllón (2005) offers a more detailed definition, considering corruption as "the illegal activity by means of which a corrupting agent and a corrupt agent reciprocally exchange a series of goods and rights of which they do not own, but in the case of public officials are only depositaries." *Transparency International* defines corruption as "the abuse of power entrusted to an authority, for private gain.

Corruption can be classified as "large, small and as political corruption, depending on the amounts of monetary lost, and the sector in which it occurs (Transparency International, 2018)."

For the United Nations Organization on Drugs and Crime (UNODC), "the concept of corruption is broad. It includes, but is not limited to, bribery, fraud, misappropriation, or other forms of diversion of resources by a public official. Corruption can also occur in cases of nepotism, extortion, influence peddling, improper use of privileged information for personal purposes, and the buying and selling of judicial decisions, among various other practices (UNODC, 2018).

In summary, corruption is an act for the personal benefit, or for those involved, or in favor of a local habit or tradition; in all cases, corruption violates current legislation, damages institutions, erodes democratic legitimacy, and deteriorates the quality of goods and public services. Although corruption is present in all the countries of the world, its social perception is very diverse. While corruption is widely rejected and persecuted in many countries, in others it is socially accepted as something normal, which difficult its eradication (Barr and Serra, 2010).

According to the social perception of corruption, it can be classified as (Heidenheimer, 1989):

1. Black Corruption. - It is an act worthy of reproach and manifests disagreement.
2. Gray Corruption. - It is an act in front of which an ambiguous position is maintained.
3. White Corruption. - It is a socially tolerable act of corruption.

In this study we focus on white corruption, which implies that society has adopted a social norm that sees the corrupt act as part of habitual behavior. This normalization of corruption makes it difficult to eradicate, mainly due to the lack of social actions against it, being the complaint the simplest and direct act. We delimit the analysis to common public corruption; that is, the white corruption established between the administered or ordinary citizens and the administrators or public officials. We will also assume that this type of corruption is beneficial for both parties, but it affects third parties because of the social loss it causes (Heidenheimer, 1989 and 1990; Alatas, 1990).

Examples of this type of corruption are situations where public officials manipulate information or obstruct procedures to obtain a payment that speeds up the process; or when they use discretion to grant or deny an authorization (Malem Seña, 2002). Although white corruption can redound in purely economic benefits for those involved, it harms society as a whole: "Corruption is the cause of many violations to human rights and coexists with institutional failures (Transparency International 2002)." Likewise, "corruption damages the efficiency of public contracts between 10% and 25% (Transparency International, 2010)." Furthermore, "corruption distorts the fair allocation of contracts, reduces equality in access to basic public services and limits development opportunities (Bribe Payers Index, 2011)." Finally, the Preface to the United Nations Convention against Corruption, states that:

"Corruption is an insidious plague that has a wide spectrum of corrosive consequences for society. It undermines democracy and the rule of law, leads to human rights violations, distorts markets, undermines quality of life, and allows organized crime, terrorism, and other threats to human security to flourish. This evil phenomenon occurs in all countries –large and small, rich and poor– but its effects are especially devastating in the developing world. Corruption hits the poor infinitely more because it diverts development funds, undermines governments' ability to provide basic services, fuels inequality and injustice, and discourages foreign aid and investment. Corruption is a key driver of underperformance and a major obstacle to poverty alleviation and development (UNODC, 2004)."

1.1 Corruption in Mexico

According to recent data from the Global Corruption Barometer (Transparency International, 2020 and Global Corruption Barometer 2019), in Mexico 34% of public administration users reported having paid a bribe, while 44% of citizens have the impression that corruption has increased in the last 12 months.

According to this indicator, Mexico has a very high level of corruption, with position 124 out of 183 countries and a score of 31 out of 100 in its corruption index[1]. In contrast, Denmark and New Zealand rank first in the 2019 rankings, with a score of 88.

On the other hand, 65% of Mexicans believe that contacts are important (34%) or very important (31%) for obtaining permits and other procedures, so that in Mexico there is a clear vision of clientelism. Mexicans specially perceive this corruption in public institutions, as can be seen in table 1.

Institution	Punctuation
Institution	4.6
Political campaigns	4.3
Parliament / Legislation	3.1
Religion	4.6
Justice	4.6
Policeman	3.2
Militia	3.2
NGOs	3.5
Private sector	3.2
Health	4.3

Table 1 Corruption in Mexico by institution
Source: Global Corruption Barometer, 2019. 0 means absence of corruption and 5 total corruption

Regarding the most frequent corrupt acts, the latest report on the National Index of Corruption and Good Governance 2010, by the independent organization Transparency Mexicana, indicates that in 2010 he acts with the highest incidence of corruption were: avoiding a fine for a traffic violation or being detained by a traffic officer (68,036%), parking on public roads in controlled places (60,964%), and prevent a traffic officer from taking the car to car depot or taking it out of it (59,689%); followed far away by: clearing customs (28,306%), recovering a stolen car (24,644%) and avoiding arrest, making a complaint or following up on a case by the Public Ministry (23,226%)[2].

On the other side, the Mexican National Institute of Statistics and Geography (INEGI) publishes annually the National Survey of Victimization and Perception of Public Insecurity (ENVIPE), and biennially the National Survey of Quality and Government Impact (ENCIG).

According to the ENVIPE 2011-2017, during that period institutions perceived by citizens as the most corrupt were: Municipal and State Police (90.5%); political parties (88%); deputies and senators (82.3%); Federal Government (81.3), State Governments (80.9%) and Public Ministries (79.8%) (Fuentes and Arellano, 2019). According to the ENVIPE 2021 data, the perception of corruption decreased but remains high: Traffic Police (73.9%); Municipal Police (65.5%); State Police (62.9%); judges (65.4%); and even the recently created National Guard has a perception of corruption of 26.2% (relatively low, but on the rise and already higher than that perception of corruption in the army, 24.8%).

In addition, according to data from the ENCIG 2019 (The ENCIG 2021 is not yet available), the total costs because of the acts of corruption paid by the victims were 64% higher than those registered in 2017; while the procedures that presented a higher cost due to corruption were those related to Public Education and contact with Public Security authorities.

On the other hand, the number of people per 100,000 inhabitants who were direct victims of an act of corruption increased 7.5% from 2017 to 2019, with the highest percentage of experiences of corruption being recorded in contact with Public Security authorities (59.2%). Finally, 52.8% of the population expressed their concern about corruption; and, of the 5.8 million inhabitants who suffered some act of corruption in 2019, 81 percent did not report it, most of them pointing out as a cause that "it would be useless and a waste of time" («The cost of corruption in procedures grows 64% », 2020, ENCIG 2019).

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[1] A value of 0 means total corruption, while a value of 100 means no corruption.
[2] To our knowledge, after 2010 there are no independent reports on the perception of corruption in Mexico about the nature and incidence of corruption in public procedures and services.

According to the *Global Corruption Barometer* 2019, in Mexico the most used option to combat corruption is to address a petition to the government, thereby making in some extent institutions responsible for this problem; conversely, awareness campaigns to change the attitude towards corruption are not conceived as an adequate solution.

The main causes people point to for not reporting the corrupt acts they observed are the ineffectiveness of complaints (45%), fear of reprisals (35%), and ignorance of the mechanisms to carry out the complaint (15%). Mexico thus presents a panorama with a high level of white corruption perceived mainly in the public sector; The most common and socially accepted cases of corruption being those of mutual benefit to citizens (administered) and public officials (administrators).

2. Theoretical foundation of the corruption model

There is vast evidence of the influence of social interactions on our behavior and our decisions (Granovetter, 1973; Breiger, 1974; Christakis and Fowler, 2007, 2008, 2010; Jackson, 2008). Interactions between individuals and between them and their social environment influence the decision on whether to adopt corrupt behavior. In societies where corrupt acts are observed normally, people have a cultural predisposition that will influence their decisions (Barr and Serra, 2010). In the same way, the own records of past interactions shape how one should act in face of the dilemma of being corrupt or not.

Max Weber's theory of social action (1944) also defines action as human behavior that consists of an internal or external doing, an omitting or allowing; from which it follows that social action is when the acts of some individual take as reference the behavior of other individuals. Two behaviors that are compatible with the choice in the face of such a dilemma are the *rational social action according to ends*, which is determined by the expectations we have regarding external behavior.

And the *traditional social action*, which results from a deep-rooted and socially accepted custom. That is, the individual decision to engage or not in corrupt behavior largely depends on the social environment, the expectations that have been built regarding it, and the social interactions.

A suitable framework to study of complex social phenomena such as corruption, where several variables are involved, and some of them are unobservable or show a high degree of subjectivity, is the Agent-Based Modeling (MBA). Unlike the conventional approach with a representative agent acting under perfect information and makes decisions optimally, the MBA allows the simulation of interactions between heterogeneous individual agents that follow simple rules of behavior. The main purpose is to deduce the underlying patterns that emerge from the set but go beyond individual interactions. This combination of a micro vision with a macro result allows us to study the social dynamics of interaction and its results (Hamill and Gilbert, 2016). Then, in this work we model the influence of imitation on the observed behavior resulting from the citizen-official interactions, as well as the propagation of these behaviors[3].

3. The Model

We consider a society formed with only two types of individuals, officials (administrators) and citizens (administered). Both follow an individual behavior rule that will determine their conduct when carrying out an administrative process, which may or may not be corrupt. The initial behavior of each individual agent is set randomly and may change dynamically according to the interactions between the agents and the behavior observed in their immediate environment. In addition to their current behavior, agents have a memory of previous interactions with the observed behavior of their counterpart. To consolidate the initial behavior, three interactions are recorded according to the pre-established type as a benchmark.

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[3] An application of the MBA approach to address a social phenomenon is the study by Janssen and Jager (1999) to explain the effect that is generated when preferences towards a product are dominant with respect to its substitute due to psychological rules simple like imitation and social comparison.

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Citizens are distributed in a grid of adjacent square parcels, in a way that each citizen's neighborhood consists of his 8 immediate neighbors, whom he can observe both in their actions and in the behavior they adopt. Officials move freely over the space of citizens following a random walk. With a certain probability and administrative process occurs and the official interacts with the citizen who is in that spot, this is observed by the neighborhood.

If both are honest, a normal interaction takes place and is recorded in the memory of each agent. If both are corrupt, a corrupt interaction takes place, which in addition to be registered in memory is observed by the citizen's neighbors. The neighbors, with a certain probability, can report the corrupt act to the authorities, if they are not corrupt themselves at that moment and are not surrounded by neighbors who accept corruption as a social norm. If the report is made, it may or may not be effective with a given probability.

When the behavior of the two agents matches, it is simply reaffirmed according to the memory record of previous interactions. When one of the agents is corrupt and the other is not, the transaction does not reaffirm their behaviors, so they will review their behaviors and might decide to change it according to social influences.

The greater the number of neighbors with a behavior different from yours, the more likely you are to change. Also, the record of previous interactions influences such that a citizen will have a greater tendency to corruption as the proportion of his interactions with corrupt officials increases. Both channels of influence determine the probability that a citizen will change their behavior.

Similarly, officials face two types of influence. The first is the behavior of other agents in your environment, which is defined as an area around you in which you observe the behavior of other officials. This, along with your history of interactions, determines your likelihood of behavior change. This probability, P, is expressed as:

$$P = \frac{1}{2}\left(\frac{Neighbours\ with\ different\ behaviour}{Total\ neighbours} + \frac{Interactions\ with\ different\ conduct}{Total\ interactions}\right) \quad (1)$$

Honest officials can also report, with some probability, an official within their range of vision, if they observe a corrupt interaction and are also mostly surrounded by non-corrupt officials (the number of honest officials is a variable of the model). In case of a successful report, both corrupt agents (officers or citizens) become non-corrupted, and their interaction memory is updated with three non-corrupt interactions, to reinforce honest behavior. This does not prevent them from displaying corrupt behavior again in the future.

The model is simulated using the NetLogo software. The variables of the model are initial percentage of corrupt citizens (g), initial percentage of corrupt officials (m), probability of interaction (t), probability of a complaint being made (f), effectiveness of the complaint ($efec$) and the percentage of honest officials (h). The exogenous fixed parameters are the number of citizens, equal to the number of parcels in the grid: 50x50 = 2500; the number of officials, 50; the weight of each influence on the probability of changing behavior, 0.5; the field of vision of the officials, 4 plots; the number of neighbors, 8; and the duration of the simulation, 2000 periods. Considering each period as a week, this is equivalent to approximately 40 years, in which each citizen would have between 2 and 9 interactions per year, which could be interpreted as the number of administrative tasks carried out by a citizen per year.

4. Results of the simulations

The results of the simulations where society converges towards honesty are shown. In total 31500 combinations of parameters where simulated and grouped according to results, many of them resulting in convergence towards corruption.

4.1 Convergence towards honesty

The values that the variables take in this set of scenarios are shown in table 2.

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Variable	Value rank
Percentage of corrupt officers (m)	30%
Percentage of corrupt citizens (g)	5%, 15%, 25%, 35%, 45%, 55%
Interaction probability (t)	5%, 15%, 25%, 35%, 45%, 55% 65%
Report probability (f)	20%, 25%, 30%, 35%, 40%
Report effectivity ($efec$)	20%, 35%, 50%, 65%, 80%, 95%
Honest officers (h)	10%, 30% 50%

Table 2 Values for the honesty convergence scenario
Source: research result by the authors.

Thus 3780 different configurations of the model show convergence towards honesty and are analyzed. Note that these values should generate a trend towards honesty since, with the exception of the highest percentage of corrupt citizens (55%), in each initial situation, corruption does not exceed 50% of the population (neither citizens nor officials); the tendency to review and consolidate behaviors should converge towards non-corruption.

The results for an Ordinary Least Squares (OLS) logarithmic regression model with constant (a) in three different set-ups are shown. In the first model, the effect of the variables on the time of convergence to honesty was analyzed. In the other two scenarios, the situation of society was analyzed after 400 periods.

4.1.1 Model 1: effects on convergence time

In Model 1, the dependent variable is the natural logarithm of the time that convergence required; while the independent variables are: the number of honest officials (h), the percentage of corrupt citizens (g), the probability of reporting (f) and the effectiveness of the report ($efec$):

$$log\ (time\ of\ convergence) = a + \beta_1 log(h) + \beta_2 log(g) + \beta_3 log(t) + \beta_4 log(efec) + \beta_5 log(f) \qquad (2)$$

Of the 3,780 simulations considered, 2,867 (approximately 75%) converged up to the eradication of corruption within the 2,000 foreseen periods, that are considered for the estimation. The remaining 913 simulations did not converge in that period but showed the same trend. The results for the estimation are reported in Table 3.

	Coef.	Std. Dev.	t-stat.	p-value
a	27.3038	0.494987	55.1605	<0.0001
log(h)	-0.366329	0.0391007	-9.3689	<0.0001
log(g)	2.79897	0.0393881	71.0612	<0.0001
log(t)	-0.342945	0.0361508	-9.4865	<0.0001
log($efec$)	-1.05016	0.0511254	-20.5409	<0.0001
log(f)	-7.69938	0.112143	-68.6570	<0.0001
R^2	0.735534			
$R^2 - adj.$	0.735072			
$F\ (5, 2861)$	1591.404			
Valor p de F	0.000000			

Table 3 OLS Model 1, convergence time
Source: Own elaboration. Only the 2867 simulations that converged within the period of 2000 periods were considered in the estimation

The adjusted R-squared of the model is 0.735, so there is a very good fit when explaining the speed of convergence; all variables are highly significant, and their signs are as expected. Estimates indicate that the higher the initial percentage of corrupt citizens (g), the longer the time required for the model to converge. The impact of honest officials (h) slightly reduces convergence time; the number of interactions (t) has a very small effect, even though the interactions influence behavior review. On the contrary, both the probability that honest citizens report corrupt acts (f), as well as the effectiveness of the report (effect) have a great impact on reducing the convergence time.

4.1.2 Model 2: effects on the number of non-corrupt citizens

In Model 2, the natural logarithm of the percentage of honest citizens after 400 periods was considered as a dependent variable:

$$log\ (non - corrupt\ citizens) = a + \beta_1 log(h) + \beta_2 log(g) + \beta_3 log(t) + \beta_4 log(efec) + \beta_5 log(f) \qquad (3)$$

Table 4 reports the results of this estimation.

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	Coef.	Std. Dev.	t-stat.	p-value
a	-0.26956	0.006939	-38.8472	<0.0001
$\log(h)$	0.007844	0.000596	13.1479	<0.0001
$\log(g)$	-0.01504	0.000496	-30.2845	<0.0001
$\log(t)$	0.009772	0.000483	20.2025	<0.0001
$\log(efec)$	0.007642	0.000760	10.0542	<0.0001
$\log(f)$	0.062866	0.001635	38.4319	<0.0001
R^2	0.449072			
$F\,(5,3774)$	615.2511			
Adjusted R^2	0.448342			
$F\ value$	0.000000			

Table 4 Model 2 OLS, non-corrupt citizens
Source: Research results by the authors over 3780 simulations

As in the previous case, all the variables are highly significant, but the fit of the model is relatively lower (0.4483); This is due to the internal variance of the models, since the number of non-corrupt citizens varies in each period and its evolution depends on the process and initial values. The initial percentage of corrupt citizens has a negative impact, as expected. The positive effect that stands out is once again the probability of reporting corruption; while the number of interactions, has the second greatest effect in eradicating corruption, above the effectiveness of reports.

4.1.3 Model 3: effects on the number of non-corrupt officials

Finally, Table 5 shows the results of the estimation of Model 3, in which the natural logarithm of the percentage of non-corrupt officials after 400 periods as a dependent variable:

$$log\ (non-corrupt\ officers) = a + \beta_1 log(h) + \beta_2 log(g) + \beta_3 log(t) + \beta_4 log(efec) + \beta_5 log(f) \qquad (4)$$

	Coef.	Std. Dev.	t-stat.	p-value
a	-0.027861	0.001863	-14.9477	<0.0001
$\log(h)$	0.0010910	0.000160	6.8086	<0.0001
$\log(g)$	-0.001507	0.000133	-11.3006	<0.0001
$\log(t)$	0.0009176	0.000129	7.0624	<0.0001
$\log(efec)$	0.0009271	0.000204	4.5411	<0.0001
$\log(f)$	0.006260	0.000439	14.2475	<0.0001
R^2	0.106016			
$F\,(5,3774)$	89.51055			
Adjusted R^2	0.104832			
$F\ value$	3.09e-89			

Table 5 Model 3 OLS, non-corrupt officers
Source: Research result by the authors over 3780 simulations

In this scenario, the number of corrupt officials (just one corrupt official represents 2% of the population) generates a very high variability, which reduces the fit of the model, with an adjusted R-square of 0.1048. However, the variables are highly significant, and the joint significance is also high; the signs are as expected. The initial percentage of corrupt citizens has a negative effect on the number of honest officials, while the rest of the variables have a positive effect. It again highlights the important effect of the probability of reporting corruption.

4.2 Low levels of reporting of corruption

In this scenario, both the probability of filing complaints and their effectiveness were reduced. This significantly reduces the propensity towards convergence. The values for the parameters are observed in table 6.

Variable	Range of values
Percentage of corrupt officers (m)	30%
Percentage of corrupt citizens (g)	5%, 15%, 25%, 35%, 45%, 55%
Probability to interact (t)	5%, 15%, 25%, 35%, 45%, 55% 65%
Probability to report (f)	0%, 5%, 10%, 15%, 20%
Report effectivity ($efec$)	0%, 5%, 10%, 15%, 20%
Honest officers (h)	10%, 30% 50%

Table 6 Parameter values, low levels of report and effectiveness
Source: By the authors

Thus 3150 combinations are simulated. As in the previous section, the effect of the variables on the convergence time and on the number of corrupt citizens and officials after 400 periods was analyzed.

4.2.1 Model 4: effects on convergence when there is low complaint

Given the low levels of corruption reporting and its ineffectiveness, only 512 simulations converged towards the eradication of corruption within the span of 2000 periods; the remaining 2,638 simulations did not converge, and many did not show a clear trend of convergence. In Model 4, equation (2) was estimated with the values of the 512 cases that converged (approximately 16%). The results are shown in table 7.

	Coef.	Std. Dev.	t-stat.	p-value
a	10.6286	0.690777	15.3864	<0.0001
$\log(h)$	-0.196801	0.0882569	-2.2299	0.0262
$\log(g)$	1.58492	0.074805	21.1873	<0.0001
$\log(t)$	-0.0932805	0.0997982	-0.9347	0.3504
$\log(efec)$	-0.619188	0.110881	-5.5843	<0.0001
$\log(f)$	-2.14583	0.125149	-17.1462	<0.0001
R^2	0.587965			
$F(5,506)$	144.4105			
$Adjusted\ R^2$	0.583894			
$F\ value$	5.23e-95			

Table 7 Model 4 OLS. Time convergence low report scenario
Source: research result by the authors over 512 simulations

The fit of the model for the 512 cases where society converged towards honesty was relatively good (0.5838). On this occasion, the frequency of interactions was not significant, despite having the correct sign. The initial percentage of corrupt citizens slowed down the convergence process, while the other variables accelerated it. The greatest effect in eradicating corruption is still the probability of filing complaints about acts of corruption, despite its low values and effectiveness.

4.2.2 Model 5: non-corrupt citizens with low report

In Model 5, equation (3) was estimated from 2016 simulations, eliminating simulations that were incomplete. The results are shown in Table 8.

	Coef.	Std. Dev.	t-stat.	p-value
a	-0.26823	0.0213046	-12.5904	<0.0001
$\log(h)$	0.022110	0.0032125	6.8826	<0.0001
$\log(g)$	-0.13937	0.0026743	-52.1153	<0.0001
$\log(t)$	0.028728	0.0026046	11.0296	<0.0001
$\log(efec)$	0.023372	0.0041435	5.6407	<0.0001
$\log(f)$	0.134447	0.0041435	32.4474	<0.0001
R^2	0.663861			
$F(5,210)$	793.9349			
$Adjusted\ R^2$	0.663025			
$F\ Value$	0.000000			

Table 8 Model 5 OLS, non-corrupt citizens under low report
Source: Research result by the authors over 2016 simulations

In this scenario, the fit of the model is slightly higher than in the previous case (0.663). The significance of variables is good, as joint significance.

The large number of incomplete or non-existent simulations (1134) is since values of zero or very close to very zero prevent the correct application of the logarithm. The effects of the variables are like those of the previous case: the effect of the initial percentage of corrupt citizens is negative, while the effect of the other variables is positive; being the probability of report the variable with the greatest effect.

4.2.3 Model 6: Non-corrupt officials under low report

	Coef.	Std. Dev.	t-stat.	p-value
a	-0.16018	0.020173	-7.9408	<0.0001
$\log(h)$	0.026959	0.003041	8.8626	<0.0001
$\log(g)$	-0.061830	0.002532	-24.4166	<0.0001
$\log(t)$	-0.002279	0.002466	-0.9242	0.3555
$\log(efec)$	0.019993	0.003923	5.0960	<0.0001
$\log(f)$	0.071994	0.003923	18.3499	<0.0001
R^2	0.340607			
$F(5,210)$	207.6513			
$Adjusted\ R^2$	0.338966			
$F\ value$	8.3e-179			

Table 9 Model 6 OLS, non-corrupt officers under low report
Source: research result by authors over 2016 simulations

In this case, the goodness of the fit is low, due to the greater variability in the percentages relative to the number of officers. Furthermore, the frequency of interactions is not significant and has the opposite sign to that expected; however, the joint significance of the model is preserved. The other variables are highly significant and with the expected sign, once again the probability of report having the greatest effect.

4.3 Scenario with high initial corruption

Finally, the scenario is analyzed where the initial level of corruption is high and, in addition, the probability of reporting corruption, as well as the effectiveness, remain low. In other words, most of the population presents an initial corrupt attitude and this is socially accepted. Parameter values are shown in table 10.

Variable	Range of values
Percentage of corrupt officers (m)	40%, 60%
Percentage of corrupt citizens (g)	20%, 35%, 50%, 65%, 80%, 95%
Probability to interact (t)	20%, 35%, 50%, 65%, 80%, 95%
Probability to report (f)	0%, 5%, 10%, 15%
Report effectivity ($efec$)	0%, 5%, 10%, 15%
Honest officers (h)	10%, 30%, 50%

Table 10 Parameter values, high corruption, and low report
Source: by the authors

6912 parameter combinations are simulated. In this context, where corruption is deeply rooted in society, convergence towards honesty within the 2000 simulation periods occurs only in 199 cases. The results of Model 7, which resulted from estimating equation (2) with the values of the 199 convergent simulations, are presented in table 11.

	Coef.	Std. Dev.	t-stat.	p-value
a	12.4578	0.31249	39.8663	<0.0001
$\log(h)$	-0.362208	0.0213134	-16.9944	<0.0001
$\log(g)$	0.576943	0.024015	24.0243	<0.0001
$\log(t)$	-0.882289	0.0482488	-18.2863	<0.0001
$\log(efec)$	0.0277843	0.0398581	0.6971	0.4866
$\log(f)$	-0.429627	0.0242397	-17.7241	<0.0001
a	-0.407588	0.0228602	-17.8296	<0.0001
R^2	0.810200			
$F\,(6,192)$	136.5989			
$Adjusted\ R^2$	0.804269			
$F\ value$	1.63e-66			

Table 11 Model 7 OLS, convergence with high initial corruption
Source: research result by the authors over 199 simulations

For these few 199 cases, the model fits very well, with an adjusted R-square of 0.8042. The effect of the percentage of corrupt officials is not significant, although it has the expected sign. The joint significance of the model is maintained. The initial percentage of corrupt citizens is the variable that delays this convergence, while the other variables accelerate it. The effect of the probability of the report is less than in the previous cases, while the effectiveness of the complaint has more relevance. The probability of interactions is now the variable that has the greatest impact on convergence. It is important to note that the impact of the report depends on the number of people who are willing to report; that is, non-corrupt citizens and honest officials who witness acts of corruption.

As the number of corrupt individuals increases, both the number of reports and their effect decrease.

Conclusions

Corruption is a very heterogeneous social problem as there are countries where its presence is minimal and others where corruption is endemic. Unfortunately, corruption in many countries has been established as a social norm and learned behavior, but in turn dependent on the environment. This seems to have occurred in Mexico in past decades, explaining that the fight against corruption appear in the political debate since the 1980s.

Historically, countries have fought corruption and, in some cases, have managed to reduce it so much that the social norm is to reject and denounce it. Thus, the interest of this contribution focused on these dynamics of social change, that play a role in reducing the incidence of corruption in administrated-administrator interactions. Although corruption encompasses more dimensions and is present in other areas of social interaction, we addressed the case of corruption in public institutions since according to corruption perception surveys it is highly prevalent in Mexico.

To better understand this social phenomenon and shed light on possible actions to combat against it, we analyzed the dynamic process of eradication of corruption in various contexts. First, we evaluated whether societies could converge towards a scenario without corruption within a span of 2000 periods, by a process of adoption of honest behaviors, which are acquired through the citizen-official interactions and by the influence of the social environment. Considering weekly periods, this approximately correspond to a total period of 38 and a half years. In the various scenarios considered in the model, the societies that converge towards honesty do so before reaching this limit.

The model also implies that citizens face interactions likely to generate a situation of corruption between 2 and 9 times a year, which would correspond to the average number of administrative procedures that citizens perform per year in the real world.

Moreover, simulations suggest that societies can converge towards honesty even when the initial corruption is high but not majority. In general terms, convergence depends negatively on initial corruption, since the more people accept corruption as social behavior, the more difficult it will be to eradicate this social norm.

Finally, we found that the greatest impulse towards convergence is the public and effective denunciation of the corrupt conduct. In other words, the greater the number of agents who report corrupt acts, and those complaints are effectively followed up and generate consequences for those who engage in corruption, the greater the probability of generating a social change towards honesty.

Unfortunately, as in reality, the results suggest that the effect of the complaint is blurred if corruption is very high, although it continues to be an important element in reducing the levels of corruption. Hence, to achieve convergence towards a situation of minimal corruption, it is necessary to establish mechanisms that allow citizen action for the complaint, and that at the same time it is effective. Awkwardly, the low credibility in the system discourages reporting because, according to corruption perception surveys, people believe that reporting will have no effect and is a waste of time; or even they fear that there will be reprisals against the person who makes the complaint. Therefore, actions must be promoted to reactivate and articulate the power of the complaint and its effective follow-up, as a tool for the fight against corruption. Likewise, we must continue to promote social awareness that corruption affects us all, because if it continues to be socially accepted and tolerated, it will be more difficult to eradicate it.

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Proposal for a Public Policy in Reference to NOM-035-STPS-2018 and SARS-CoV-2/ COVID 19

Propuesta de política pública en referencia a la NOM-035-STPS-2018 y al SARS-CoV-2/ COVID 19

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Abstract

The economic development of companies has not been simple, continuously, they have to reinvent themselves, to keep up with the requirements and national and international changes that are generated, so the present study, seeks to harmonize the guidelines of the NOM-035-SPTS-2018, which generates substantial changes in the contract and management of personnel; and on the other hand, the pandemic Covid-19, which generated a special condition; The government and companies have modified their ways of working, are facing unexpected situations that adhere in several aspects to NOM-035, with the aim of seeking the proposal of a public policy to encourage such changes and alleviate the situation of public and private enterprise, which is reflected in the health and welfare of the working population, in turn achieve an economic benefit in Public Health. An analysis is made with a qualitative, exploratory documentary approach, based on the laws, articles of the organizations in charge and formal research on the subject, evaluating the possibility of creating a public policy to address this problem.

NOM-035, México, Covid-19

Resumen

El desarrollo económico de las empresas no ha sido sencillo, continuamente, se tienen que reinventar, para estar a la altura de los requisitos y los cambios nacionales e internacionales que se generan, por lo que el presente estudio, busca armonizar los lineamientos de la NOM-035-SPTS-2018, la cual genera cambios sustanciales en el contrato y manejo del personal; y por otro lado, la pandemia Covid-19, que generó una condición especial; El gobierno y las empresas han modificado sus formas de trabajo, están enfrentando situaciones inesperadas que se adhieren en varios aspectos a la NOM-035, con el objetivo de buscar la propuesta de una política pública para incentivar dichos cambios y aliviar la situación de la empresa pública y privada, que se refleja en la salud y bienestar de la población laboral, a su vez lograr un beneficio económico en la Salud Pública. Se realiza un análisis con enfoque cualitativo, exploratorio documental, basado en las leyes, artículos de los organismos encargados e investigaciones formales sobre el tema evaluando la posibilidad para crear una política pública que atienda esta problemática.

NOM-035, México, Covid-19

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1.- Introduction

The current economic situation of companies in Mexico has been somewhat complicated, facing a scenario of uncertainty the last years 2019, 2020 and 2021, have been difficult operationally and economically, the impact of the pandemic of COVID-19, came to modify the way of operating and interacting of companies around the world; to date it is difficult to realize the total economic impact.

Globalization has brought for Mexico, commitments, that its compliance, today becomes more urgent, as it of sustainability, which includes the issue of inclusive and decent work, understanding that it must observe, a healthy work environment in all contexts, that is why this article is reviewed in this article the NOM-035- STPS-2018, which is aimed at detecting, correcting and eliminating psychosocial risk factors in companies, as well as assessing the labor affectation and the current situation of companies in Mexico, which is in a non-beneficial scenario, so it is about verifying the possibility of a public policy as an incentive for this situation.

It is perceived that a public policy is a burden for the State, which in the same way has been affected by the pandemic, so the different panoramas are analyzed, from the international and national framework, through a documentary type research, netnographic, reviewing the formal and scientific impressions about these situations, the laws that issue the guidelines for the application of this norm, the scenarios of unemployment and formal work within the country, the economic damages of the companies, as well as the characteristics and benefits of the existence of a public policy with respect to this situation.

The scope, burdens and benefits generated by the establishment of NOM-035 are presented, determining the critical points in its application, which is mandatory for all companies. The results of the economic analysis of the pandemic are reviewed, analyzing the most relevant aspects and damages for the companies and also verifying the function that a public policy has, which contraventions and benefits could be given, trying to give an answer to the detected problematic, being an option to reincentivize the economy of the Country at this time.

2. - Legal aspect of NOM-035-STPS-2018

The NOM-035-STPS-2018 Psychosocial Risk Factors at Work-Identification, Analysis and Prevention (NOM-035). It is created through international agreements in which Mexico in response to this treaty, adopts measures so that companies are regulated by labor regulations in order to establish guidelines that can identify psychosocial risk factors, as well as to promote a favorable climate in the workplace.

This measure is mainly promoted by the International Labor Organization (ILO), since this labor problem is widespread in developed and developing countries. (Zarka-Martres, 2001). The legal framework includes the Political Constitution of the United Mexican States (CPEUM), the Federal Labor Law (LFT), the Mexican Official Standards, and the regulations of the Federal Secretariat of Occupational Safety and Health, which regulate current obligations. In its Constitutional Article 123 states, that employers shall be obliged to observe according to the nature of their business the legal precepts of safety and hygiene. (José & Fol, 2018); likewise the LFT stipulates that decent and dignified work must offer optimal safety conditions to prevent risks, as well as the obligations of employers to operate workplaces in accordance with the exposures established in the regulations of the Secretary of Safety and Health at Work and in the Mexican official standards on safety, health and environment; as well as the obligations of workers to observe these provisions.(Eladio, 2021)

Article 512 of the LFT states that the federal authority will identify the measures necessary to prevent occupational hazards and ensure that the conditions are present to ensure the life and health of workers, such power of the federal authority can be found in the regulations, as well as in the forty-four Mexican Official Standards on Occupational Safety and Health, which are those issued by the STPS. (Pérez & Fol, 2021).

The objective of NOM-035 is to establish which are the elements to identify, analyze and prevent psychosocial risk factors, as well as to promote a favorable organizational environment in workplaces, and that these resources are mentioned below in the following table.

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Identification and analysis of psychosocial risk factors	Organizational environment how it is achieved
Working environment conditions	The sense of belonging of the workers in the organization, being committed to
workloads that exceed	Training for the proper performance of the assigned tasks to the extent of what he knows what to do, so that he is able to perform the work.
lack of control over the work, more workloads	The precise definition of responsibilities for the organization's members
Working hours and shift rotation, which exceed those established by the LFT, affect the worker.	Proactive participation and communication among its members.
Interference with the work-family relationship	Adequate distribution of workloads with regular work days
negative leadership with complicated and heavy environment	The evaluation and recognition of performance, to say what a good job was done so that they feel a sense of belonging.
workplace violence in the different types of employer attitudes	

Table 1 Own elaboration of Psychosocial Risk Factors and Organizational Environment
Source: (Diario Oficial de la Federación, 2021)

The obligation of the standard comes into force in two parts, one is from October 23, 2019 which is already implemented in the workplaces in terms of prevention policy, in the identification of workers exposed to severe traumatic events and the dissemination of information. The second part, which will be in force as of October 23, 2020, provides for the identification and analysis of psychosocial risk factors in the evaluation of the organizational environment and the measures for control actions, the practice of medical examinations and records.

All companies that have workers, must implement NOM-035 and depending on the size of the company will have to show documentary evidence in the workplace as follows:

1- 15 Workers

– Establish policies and measures to prevent Psychosocial Risk and Workplace Violence and to promote a Favorable Organizational Environment.

– Identify and analyze psychosocial risk factors and workplace violence.
– Identify workers who were subjected to severe traumatic events.
– Disseminate information among workers about the analysis, results and preventive and corrective actions on psychosocial risk factors, workplace violence and the promotion of a favorable organizational environment.

16 - 50 Employees

– Establish policies and measures to prevent Psychosocial Risk and Workplace Violence and to promote a Favorable Organizational Environment.
– Identify and analyze psychosocial risk factors and workplace violence.
– Identify workers who were subjected to severe traumatic events.
– Disseminate information among workers about the analysis, results and preventive and corrective actions for psychosocial risk factors, workplace violence and the promotion of a favorable organizational environment.
– Conduct medical examinations for workers who have been found to have a psychosocial disorder that could have repercussions on their physical health.

51 or more workers

– Apply each and every one of the requirements of NOM-035-STPS.

IMSS, in accordance with the World Health Organization, states that health risks in the workplace and psychosocial stress cause occupational diseases and can aggravate other health problems, as well as employment conditions, occupation and position in the hierarchy of the workplace can also affect health due to the psychological pressure that may be exerted. People who work under pressure or in precarious employment conditions are likely to smoke more, engage in less physical activity, and have an unhealthy diet. Work-related non-communicable diseases, as well as heart disease and depression caused by occupational stress lead to increasing rates of illness and prolonged sick leave, which is a national health problem and a public expense (IMSS, 2020).

The Social Security Law establishes that it will be in charge of dictating the incapacities of the workers, but it does not mention psychosocial causes as one of them, creating a problem or void that generates inconsistency, since it is necessary to contemplate the diseases and their procedure, there is treatment for problems of this nature, at labor level only unpaid leave and psychological treatment to overcome it are dictated. This institution will be in charge of providing psychological support to workers. (LFT AND LSS, 2021).

The non-compliance with the established guidelines of NOM-035 are penalties that through ordinary inspections are applied to the extent of the offense, and such fines are determined in Units of Measurement and Updating (UMA), which are from 250 to 5,000 UMA and these can be cumulative when not complied with; therefore, the STPS is empowered in the review to conduct audits and scrutiny of compliance.

SARS-CoV-2/ COVID 19

In addition to the application of NOM-035, the pandemic generated by COVID-19 complicates this process.

This virus was identified in Wuhan, China, was registered in December 2019, which is a severe acute respiratory syndrome coronavirus, causes a disease of almost immediate transmission, which can spread from person to person, it is considered to be a pandemic since (Center for Disease Control and Prevention, 2021), as of September 2021 there is an estimated number of 231. 820,802, this number is changing since to date it has not been possible to stop this disease, and an approximate of 4,748,055 deaths were registered as a result of COVID-19 (Johns Hopkins University & Medicine, 2021), the figures in Mexico are equally alarming, since to date there are 3,847,368 cases of contagion (CONACYT, 2021)., this type of virus has been considered one of the most harmful worldwide.

Coronavirus (COVID-19) has impacted millions of people around the world. From a business perspective, the coronavirus affected a large number of entrepreneurs, but at the same time brought opportunities for renewal. (Rincon, 2020).

According to data from the National Institute of Statistics and Geography (INEGI), through the Telephone Survey of Occupation and Employment (ETOE, 2020) formal and informal companies, closed or temporarily suspended their activities, due to the pandemic. It generated almost 30% of formal unemployment rate and an increase in the informal occupation to almost twenty-three million people, representing almost 52% of the country's labor occupation.

If we talk about the economic sectors of the country, the primary sector is in difficult times, as it is making a heroic effort to stay afloat (Román, 2020).

The explanation is very simple, it is due to the impact caused by the closing of borders for exports of farm products, in addition to the change in the need to purchase products with longer expiration dates due to the uncertainty of the people.

The service sector suffered an impact on tourism in states such as Quintana Roo and Baja California Sur, to mention a few. The economic crisis generated by the coronavirus has nothing to do with previous recessionary periods in history. It is basically a consequence of the confinements and social distancing measures enacted to curb contagions and not precisely the imbalance in the financial systems. Moreover, it attacked modern economies, i.e. the service sector, with major consequences, particularly for employment, which was much more affected than production in general. Therefore, if vaccination is the solution to the health unknowns, the economy should be revived. The IMF (International Monetary Fund), in its latest autumn forecasts, estimates a 5.2% growth for world GDP in 2021 compared to a 4.4% drop in 2020. (El País, 2020)

To face the pandemic crisis, the Mexican Government has undertaken a series of short and long-term financial measures aligned with the fundamental purpose of maintaining the balance of macroeconomic variables, with positive results for the country's economy in a global economy that has suffered economic and health setbacks, which Mexico has been able to weather. This economic policy has allowed the country to maintain a stability that had not been seen in previous decades. (Bank of Mexico, 2020)

In a press release, Expansión (Expansión, 2020) assures that the Mexican economy has suffered the most serious crisis in the last 100 years, announcing more than 10 million new poor people, all this, due to the COVID-19 pandemic. At the same time, one million small and medium-sized businesses have now closed. Gómez in his paper (Gómez, 2021) mentions how the year 2020 started with 2.83% positioning the country in one of the lowest inflation of the last ten years. However, as of April 2021, inflation would begin to rise, reaching a maximum of 4.09% at the end of October of the same year. This is due to several circumstances caused by the pandemic, such as the shortage of basic food basket products, since there have been severe difficulties in the production of goods and also complications in the logistics to transport these products.

Economic growth is measured through the variation of the Gross Domestic Product (GDP). That is, when a country produces more goods and services than the previous year, using the same number of resources, it means that it had a higher consumption, therefore, it generated higher income. At the end of 2019 the country reached a negative growth of -0.1%, and at the beginning of 2020 a growth of 2% was estimated for the same, however, due to the pandemic causes a shutdown of the economy which causes the Mexican economy to fall by 9.9%. (Gómez, 2021) According to an article published by FORBES magazine (FORBES, 2021) the Latin American region was the most affected with a loss of 39 million jobs, with Mexico presenting a reduction of 12.5%.

The Covid-19 pandemic reduced by 8.8% the number of working hours in the world in 2020, or the equivalent of 255 million jobs, highlighted today a new report of the International Labor Organization (ILO) that foresees a "slow, uneven and uncertain" recovery of the labor market in 2021. The loss of income from labor last year was similar, at 8.3 percent, equivalent to 3.7 trillion dollars (3 trillion euros) or 4.4 percent of world GDP.

The 255 million jobs "lost" (in many cases it was actually a reduction in the working hours of people still employed) represents an impact four times greater than that caused by the global financial crisis of 2009, the ILO pointed out.

It should be noted that, despite the high figures, the loss of working hours considered by the ILO for the whole of 2020 was significantly lower than that calculated in the second quarter of last year (400 million jobs) and the third (almost 500 million).

In this respect, it was women who were most affected by the unemployment resulting from the pandemic.

Impact of covid-19 on Unemployment in Mexico

According to official information from the United Nations in Mexico, prior to the pandemic, women reported that their male colleagues had more time and facilities to go on business trips, join projects, and attend after-hours events that are key to professional growth. There was also a marked pay gap with men, more facilities for men to reach decision-making positions, and growth facilities for those without children. Motherhood was seen as an element that has held back their professional growth.

With COVID-19 confinement, some men were placed in a position of comfort with respect to women.

In this regard, 80.5% of women with daughters and sons under 10 years of age reported increased unpaid work, compared to 76.8% of women without children; in addition, 56% of women reported feeling more tired than before the pandemic, compared to 39% of men in this situation.

The COVID-19 pandemic also significantly impacted the health of working mothers, who reported physical and mental exhaustion. Most expressed that fulfilling the work and care around the home represented an overload. (UN Mexico, 2021)

	Women	Men
No gainful employment	80.9%	26.2%
Work outside the home without the possibility of a home office	24.8%	45.5%
Work from home	4.1%	2.3%
Work outside the home with the possibility of a home office.	12.2%	22.5%

Table 2 Employment status prior to the pandemic
Source: Authors' elaboration based on UN México (2021)

4.- Public Policies

It is clear that in all economic activity the most valuable asset is human capital, the engine that makes companies and the economy itself grow, and speaking of companies is determined, the most important expense in its expenditures, so it is also essential to take into account the labor situation of people working in a company, it is substantial, since from the "organizational health" is the performance and growth of the organization.

In the current situation, when analyzing the companies and their panorama, we have determined the important points to know, such as the regulations implemented in Norm 035, and the situation that afflicts this sector due to the pandemic of COVID-19, the companies are trying to resist these changes and adapting to the modality at home, the situations generated by the disease of COVID-19, it has been considered that the situation of the companies is not a new one.

The situations generated by the COVID-19 disease have been considered to cause emotional disorders from being confined by the pandemic, loss of family members, or the same fear of being infected, mental health experts consider that there is still uncertainty due to the probable mental illnesses that have not been fully determined, Pedro Rodríguez (Cortés, 2021), specialist in mental health and member of the General Council of Psychology of Spain, assures that all of us will present some psychological reaction and consequences in this sense, it can be from an obsessive compulsive disorder (OCD), phobias, hypochondrias, among others; This is alarming, because when talking about a worker, it will be difficult to define this type of disorder that is monitored by the NOM-035, and determine whether it is generated from work situations or family situations or outside the workplace, which brings with it the implementation of extra actions to the application of the standard, such as psychology specialists who are aware of the ailments that occur in the corporate, It is for all these aspects, the need to implement measures to facilitate this process, that companies that represent a substantial contribution to the Mexican economy, have an incentive or a security that they can cope with this economic burden and all that it entails.

A public policy would be a means to give certainty to this private sector, through this measure a clear panorama could be established for the businessmen, which would allow them to have all the bases to carry out this attention to the employees, visualizing this regulation as a benefit, which undoubtedly it is, but with a certainty that there is a support from the government that will allow not to skimp in the least, and that in turn can benefit the formality of employment. support from the government that will allow not to skimp in the least, and that in turn can benefit the formality of employment, since it is because of aspects like this that informal employment continues to occur in Mexico. (IDC Online, 2021)

Public policy is the response to the needs or problems of the governed, that is, it is the way in which the State makes its presence felt in the face of the demands faced by the population and in Mexico, it is common for these to be changed or modified by the incoming governments, failing to follow up on the regulations imposed previously; But similarly Public Policies are the way to handle certain issues in the different areas that a government works, whether public policies in health, infrastructure, security, etc.

Ruiz López and Cárdenas (Ruiz,D. and Cárdenas, C., 2018) point out that it is understood to be, a government program, and this can be an answer to work any type of public issue that needs a line for its attention. According to (Bravo, Díaz, & Meneses, 2021) policies must be designed under coherent criteria, established to achieve the business mission objective, in addition to achieving good productivity; it also seeks efficiency in the investment of resources, in such a way as to allow planning, programming and executing the budget of public entities.

For a Public Policy to be effective, the participation of the governmental body and civil society is needed, since it would be difficult to conceive an action aimed at citizens in which they do not participate. As the function of a Public Policy is clear, which in concrete terms could be determined as the action of directing an activity towards its execution, and that within the analysis of the feasibility of the creation of a Public Policy in compliance with NOM-035, it would be understood that this would be in favor of the companies that will carry out the application of the Standard in their work environment,

The development of this policy implies having specialized personnel in the initial analysis studies, following up on the failures found and implementing the necessary changes to reduce the psychosocial risks found; However, this does not imply the need for a benefit for those who carry out the regulations, more in the analysis of the pandemic situation that is being experienced today, and the havoc that is being generated and the modifications that companies have had to make.

A public policy in this sense, could be a fiscal policy itself, that encourages some discount for the expenses generated in the institution of specialized personnel or integral actions to attend to the health of employment; with a background of encouraging the formality of employment, since in these circumstances, companies, mostly SMEs, see informality in the employment of their workers, as an ease and a more economical way to carry out their operations.

A policy addressing this situation would bring a benefit in several aspects, it would be an incentive to formalize and give all the labor and legal guarantees to the employees, attending to the norms established for the labor relationship, it would be a great help in public health, since those red spots of labor health would be immediately addressed in the companies, and there would be an advance in the national economy since everyone would be in the formality.

Description of the method

The research was qualitative of basic type since it contributed to the generation of knowledge, it was non-experimental through an action research design, the information was collected through the collection of documents, it was possible to review a variety of scientific publications that have studied the different topics discussed in this document, mostly international sources specialized in the subject.
The testimonies printed in other investigations were analyzed, which allowed us to have a general overview, showing that there are similarities in the characteristics and problems detected in Latin American countries regarding the impact derived from the application of NOM-035-STPS-2018 and the COVID 19 consequences.

6.- Results

From the data presented, it is clear that the current economic situation both for the country, citizens and companies is not very encouraging, the numbers shown by international organizations give a clear picture of the recession that has been generated by the virus, and likewise shows the need to make immediate decisions for sustainability and respect for the ecosystem from all perspectives, One of these is the attention to people, and on this occasion the working population, which has been shown that in Latin America, and specifically in Mexico, precarious working conditions prevail, hence the need to create standards to ensure a healthy employment, so that the 035 Standard is the answer to this need.

Still, the institutions do not have statistical data on the problems of psychosocial risk factors, since the second phase of the standard is just going to be implemented as mandatory, it is in its initial phase, and it is from this year, October 23, 2021, where you can have a database, which allows to measure the degree to which the requirements of psychosocial health are met according to the objectives of the standard, and to ensure the rights of workers.

The Norm has been implemented, in the possibility of the companies and with the caveats of the lack of information for this task; there are doubts about the actions since not even the same institutions such as the Social Security have updated their occupational diseases, since the diseases that are sought to be detected and treated by the NOM-035, are not yet considered as occupational diseases, so there is no occupational risk or a defined procedure for their administrative treatment.

On the other hand, the pandemic in the last two years presents important challenges for companies in Mexico, as they respond to a serious financial and operational crisis with a high degree of responsibility to keep their businesses operational, having to implement a series of actions not only to comply with the restrictions of the sanitary authorities, but they were also able to design different strategies to continue with their productive activities, despite the absence of financial incentives that most of them did not have access to.

The lack of federal support to these businessmen caused the unemployment rate to skyrocket, since even with the businesses closed, they had to continue with the compliance of the employer-employee obligations, which is why this generated a number of business closures, specifically those that did not have financial leverage to help them cushion the crisis caused by the pandemic, and also the need to operate informally such as informal employment, having employees without any type of guarantee and benefits.

It was also found a contradiction, since the NOM-035, seeks to find, prevent and treat psychosocial damage generated in companies either by their organizational climate or its very operation, this is complicated when we talk about the aftermath of the disease, which are these same, it is difficult to define whether the damage detected in the employee, comes as a result of their work stress or tension, due to their workload; or it is generated by some personal situation of affectation for having suffered COVID-19 or someone of his family has been affected, mechanisms of attention of bottom inside the companies are needed, activities or actions that encourage the source of work, that give tranquility and attention to the employees, that this is summarized in expenses for the labor unit.

7.- Conclusions

In view of this panorama, the public sector in Mexico has to look for answers to these needs, it is clear that the application of NOM-035 is decisive in view of the legal authority that it implies, there is no other option but to comply with it, there have been many situations overcome by small and medium-sized companies, not excluding some multinationals, There have been many situations that Small and Medium-sized companies, without excluding some multinationals, have had to deal with on the burden they face day by day, so some type of benefit, translated into some administrative facility or economic remission would be a great help for those who are in the formality, a public policy translates into a public expense, or a decrease of income in the government's coffers,

It is very useful to carry out an in-depth review of the great help that would be generated if, in the face of an economic benefit, the companies that are formal and informal today align themselves with this measure and perhaps go further in the prevention and solution of the damage to occupational health in the organization, This would be a public policy that would help to reactivate and maintain the economy, lightening the burden on companies and benefiting the working population.

8.- Proposals

–   It is proposed that the Government carry out actions aimed at supporting companies that have retained their employees in times of pandemic, seeking benefit mechanisms, such as remission of taxes related to payroll or social security contributions.

–   Generate clear guidelines for the deduction of expenses related to the prevention and attention that NOM-035 manages, giving certainty to proceed in actions such as implementing an area of psychological services within the company, offering benefits related to sports or recreational activities for employees, and other actions aimed at the prevention and attention of psychosocial risks.

–   Implement actions on the part of the STPS, of a rigorous follow-up for those companies that bring detected situations, so that these receive direct support before the involved institutions such as the IMSS.

–   Promote advertising campaigns by the STPS, in which information is disseminated to contribute to the reduction or elimination of psychosocial risks.

–   Offer workshops to workers, to sensitize them to the importance of the work environment and with this they can detect risk situations, helping the company to find strategies for balance in the workplace.

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Procedure for the elaboration of institutional policies on University social responsibility

Procedimiento para la elaboración de políticas institucionales de responsabilidad social Universitaria

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Abstract

It is essential to make knowledge explicit in a clear way so that it can last and be passed on for the benefit of future generations. In reference to the establishment of institutional policies on University Social Responsibility (USR) in the institution under study, there are still areas of opportunity, which is why the objective of this work was established as a clear procedure for creating institutional public policies on USR, which will serve to detect needs and propose appropriate policies that will influence or contribute to the development of the various dimensions of USR in the institution. A mixed type of research was used, gathering information from various bibliographical sources and from teachers from different faculties that allowed to validate that the proposed procedure is correct, the approach was qualitative, and observation and dialectics were used as a research technique. The study was carried out by proposing the procedure derived from documentary research, own experience and discussion with teachers who participated in the exercise of drawing up proposals for institutional public policies using the procedure in question to corroborate its effectiveness. The main result of the work was to establish the procedure for the development of institutional policies on USR with their respective techniques and instruments, which will help to develop institutional policies and contribute to the implementation of USR in the institution under study, and in the medium term, to obtain distinctions from national and international organizations in this area.

Resumen

Resulta imprescindible explicitar el conocimiento de una manera clara a efecto de que perdure y se pueda transmitir en beneficio de generaciones futuras. En referencia al establecimiento de políticas institucionales en materia de Responsabilidad Social Universitaria (RSU) en la institución en estudio, prevalecen áreas de oportunidad, por lo que se estableció como objetivo del presente trabajo el exponer un procedimiento claro para crear políticas públicas institucionales en materia de RSU, mismo que servirá para la detección de necesidades y plantear las políticas convenientes lo cual permitirá incidir o contribuir en el desarrollo de las diversas dimensiones de la RSU en la institución. Se usó el tipo de investigación mixto, recabando información de diversas fuentes bibliográficas y de los docentes de diversas facultades que permitieron validar que el procedimiento propuesto es correcto, el enfoque fue cualitativo y se utilizaron la observación y la dialéctica como técnica de investigación. El estudio se llevó a cabo planteando el procedimiento derivado de investigación documental, de la experiencia propia y de la discusión con docentes que participaron del ejercicio de elaboración de propuestas de políticas públicas institucionales utilizando el procedimiento en cuestión a efecto de corroborar su efectividad. El principal resultado del trabajo fue establecer el procedimiento para la elaboración de políticas institucionales en materia de RSU con sus respectivas técnicas e instrumentos lo cual servirá para que, se puedan desarrollar políticas institucionales y coadyuvar en la implementación de la RSU en la institución en estudio y en un mediano plazo, poder obtener distinciones de organismos nacionales e internacionales en esa materia.

Procedure, Institutional policies, University social responsibility

Procedimiento, Políticas institucionales, Responsabilidad social universitaria

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1. Introduction

The constant search to improve the quality of education in Higher Education Institutions (HEIs) has led them to prepare policies, strategies, procedures, programs, norms and actions and, in general, all kinds of plans necessary for them to function within the framework of national and international requirements regarding the HEIs themselves, also giving due importance to the trends and innovations that have an impact on social development; Thus, it becomes necessary to make explicit the knowledge to prepare these plans, according to the real needs, i.e. the deficiencies needed to be solved within the institution, including the procedures.

The focus on the impacts of organizational management, education, research and social participation, centered on the stakeholders of educational institutions (students, authorities, teaching and non-teaching staff and researchers, suppliers, employers, competitors, society in general, government and the environment), is known as university social responsibility (USR) and has given rise to a great deal of research on this topic; This is how we find authorities on the subject such as Francois Vallaeys in Latin America, who has carried out work ranging from a manual of first steps, proposals for models, definitions of the topic analyzed in depth, specific areas for the diagnosis of responsible behavior with its indicators, research instruments to diagnose USR, among others.

Vallaeys, regarding the need to generate adequate instruments for the establishment of institutional public policies, has commented that it is necessary to initiate the production of tools or instruments for the management of USR, which (among other benefits) should allow the participation of institutional stakeholders in the management and elaboration of improvement strategies in the HEI, Vallaeys (2006), however, it is difficult to find research that exemplifies the elaboration of institutional public policies on USR in each of its phases, including the needed instruments. Regarding public policies, Velásquez-Gavilanes (2009), stated that it is the integrating process of decisions, actions and inactions, agreements and instruments, conceived from the collective to the authorities, with the aim of solving or preventing a situation defined as collective.

The institutional philosophy under study, such as the Statutes, the University Educational Model (MEU) and the Institutional Mentoring Program (PIT), includes general policies on USR and consultations have been carried out among stakeholders for their elaboration, however, these are still very general and are not detailed for each different level, specific areas such as faculties, departments, laboratories, etc., although it is worth mentioning that there are some documents such as codes of ethics, specific plans for some faculties and norms among other documents, are yet to be solved in order to improve both the management in the four impact axes of the RSU and the conditions of the interested parties in the institution, a situation that if solved can generate the needed conditions to obtain a distinction as a socially responsible institution at national level granted by various institutions such as the Mexican Centre for Philanthropy (CEMEFI).

Now, although there are general policies on USR, the question is: How can institutional policies on USR be created in detail, what is the appropriate procedure for them to be created in a more user-friendly way and how can this have an impact on the institution under study in order to obtain a distinction in the medium term?

From this observation, which serves to generate the research question, a problem also arises: institutional policies exist in general, but in particular they are still in an incipient stage, the cause of which may be the lack of clear procedures and detailed instruments for their creation.

Thus, the objective of this work is to set out a procedure for creating institutional policies on USR, which will serve to detect needs and propose appropriate policies, which will influence or contribute to the development of the various dimensions of USR in the institution under study and in the medium term will contribute to obtaining a distinction in this area. To achieve the above, the proposal of procedures to create institutional policies on USR was developed from the documentary review and own experience, as well as participated in the delivery of the course on the same topic in various faculties of the institution where it was possible to observe the effectiveness of the instruments with the participation of teachers to develop their policy proposals using the same during the years 2019, 2020 and 2021.

The methodology used for this research was that of a mixed type, with field research predominating, given that, although a theoretical overview of the main variables was carried out, most of the research was obtained from direct contact in the field with the participants in the USR course and in the institutional policy proposal exercise. The sample consisted of 270 teachers out of a total of 2446, i.e. 11.03%.

It can also be said that it was a case study since it was considered for this study only and specifically to a higher education institution, dialectics was also used to know the pros and cons of these instruments.

2. Theoretical context

2.1 Public Policy

In Mexico, public policies are conceived as "the product of the state's decision-making processes in the face of certain public problems; these decision-making processes involve actions or omissions by government institutions" (Cámara de Diputados 2021). In this sense, this definition is in line with the proposal made by Dye quoted by Quiñones (2019) "Public policy is what the government chooses to do or not to do". This position is imposed and capitalized by the government body or in the case of the private sector, a decision of the employer, which implies making decisions in the name of the common good, however, many of these decisions could be subjective, as they depend on the perception of those who lead without considering the opinion of society itself. The above proposals are far from the original idea established by Lasswell in 1951 cited by Ortegón-Quiñones (2019), where he states that "public policies should concentrate on the study or analysis of public problems.

According to Velásquez-Gavilanes (2009), a public policy is the integrating process of decisions, actions and inactions, agreements and instruments, conceived from the collective towards the authorities, with the aim of solving or preventing a situation defined as collective. According to IDB (2006) "public policy conceptions are the result of complex exchanges between political actors over time", so they change, adapting to the situations of each country and time, however, both seek to reach a consensus on conflicts by establishing incentives for collective action, providing goods and services.

Actions that have an implicit moral duty, the ethics of rights and obligations, values that do not violate the right and freedom of individuals to choose their own collective and individual objectives and not those imposed. In this sense, the participation of each of the social actors must be incorporated to give public policies the capacity for self-management to reconcile conflicts through fair and effective regulations Díaz-Aldret (2017) and Ortegón-Quiñones (2019).

To ensure the integrity of the being of public policies, they must have elements that legitimize them, in this sense, the proposal of Méndez-Martínez (1993) is inherent to the process of integrating decisions and considers the collective:

a.   Detection of the problem. Identified by the collective, it is the inherent reference point of the policy.
b.   Diagnosis. The causes are identified, and some measures are proposed to control or mitigate the problem.
c.   Solution. The objectives to solve the problem are determined.
d.   Strategy. This is the set of actions to solve the problem
e.   Resources. The tools that the actions of the strategy will be carried out with.
f.   Execution. The implementation of the strategies.

2.2 University social responsibility

According to Montalvo, Villanueva, Armenteros and Cervantes (2016), in Mexico, following the actions of the Mexican Centre for Philanthropy (CEMEFI) and the principles of the Global Compact on corporate social responsibility, universities, according to their priority areas, define their own model or structure of USR to integrate it with institutional objectives, following the use of the Manual of Vallaeys, De la Cruz, and Sasia (2009) disseminated by the International Development Bank (IDB) and Mexican Association of USR.

And although social responsibility is currently a well-known topic, mainly in the business world, research on the subject applied in the educational world is relatively new and is still in progress and increasing by leaps and bounds in Latin America and Mexico, as shown by the efforts made by:

(Among other governmental and non-governmental organizations), the Union of Latin American University Social Responsibility (URSULA), which brings together different development actors to discuss in depth the role of the university and the different strategies and methodologies to carry it out effectively.

The above can also be observed by finding that research on university social responsibility has increased by 500%, according to Baca (2015), who cites Gordon & Gelardi (20059 and De la Cuesta & Sánchez, (2011), among other authors, and mentions in this regard, that universities have become a focus of interest in this area and are a fruitful field of research.

University Social Responsibility (USR) has been defined as "a new university management policy that is being developed in Latin America to respond to the organizational and academic impacts of the university. It differs from both traditional solidarity outreach and a mere declarative unilateral commitment and forces each university to question its epistemic assumptions and its hidden curriculum. As such, USR is not comfortable, as it forces institutional self-criticism" (Vallaeys, François, 2014).

Vallaeys, François (2009), the most recognized authority on the subject in Latin America for his work on social responsibility, establishes the following areas or impacts, dimensions and axes for USR:

Four spheres of action or impact of the university

Organizational sphere: as an institution that operates around a university project, with a structure that develops it and specific policies that promote it. It is also an institution that consumes, hires, generates waste, and so on.

1. Educational sphere: as an institution that is responsible for the education of its students, with a professional and civic vocation.
2. Knowledge sphere: as an institution that researches, produces knowledge and transmits it.
3. Social sphere: as an institution that forms part of society and interacts with other agents, collectives and communities, both locally and globally.

It also establishes the following as stakeholders, interested parties or groups of interest: Non-teaching staff, teaching and research staff, authorities, students, suppliers, alumni, employers, competitors, local communities, partner organizations and the state. As well as the four axes of involvement of the same RSU, which are also considered as the duty to do of a higher education institution at the higher level

1. Responsible campus: implies the socially responsible management of the organization and its institutional procedures, the working environment, the management of human resources, internal democratic processes and care for the environment.
2. Professional and citizenship training: socially responsible management of academic training (in its subject matter, curricular organization, methodology and didactic proposal).
3. Social management of knowledge: socially responsible management of the production and dissemination of knowledge, research and epistemological models promoted from the classroom. In other words, guiding scientific activity, coordinating lines and research with external stakeholders so that knowledge is produced in accordance with the local and national development agenda and public sector social programs.
4. Social participation: this is the socially responsible management of the university's participation in the community. That is, carrying out projects with other actors creating links for mutual learning and social development.

3. Development and results

The procedure for the elaboration of institutional public policies is developed after consulting bibliographical material, prior to the teaching of a course on university social responsibility to teachers in the educational institution under study; as a section of the aforementioned course, the practice of formulating these policies is developed, in which the procedure is used with its respective techniques and instruments.

With the institutional public policies derived from the practice, a dialogue is held with the teachers on the results obtained and the practicality and feasibility of using them in their faculty and on the feasibility of deriving positive results, and institutional public policies have always been derived from real needs and it has been observed, discussed, and concluded that the procedure with its techniques and instruments is effective. This workshop has been given for three consecutive years an average of three times each in and for different faculties, starting in person and currently virtually, a situation that has allowed us to verify the validity and reliability of the established procedure, since this procedure has been used by 20 teachers out of a total of 2446, i.e. 11.03%.

Some of the activities proposed in the "Roadmap for Corporate Social Responsibility CSR in the River Region 2015 of Vision Valdivia, International Labour Office (ILO) and the European Union (EU) are also considered for the development of institutional public policies on CSR, where they are specified as phases for developing CSR policies, specifically as lines of action and projects to detect areas of opportunity or needs that are described as "gaps" in that document. It also considers the "organization for action", which establishes committees, commissions and other bodies that need to be formed to implement the proposed policies.

Following the review of various bibliographical sources, the procedure for the development of institutional public policies for educational institutions in the field of USR is proposed with a logical sequence, but it can be developed in a flexible way according to the needs and characteristics of the institution.

Procedure:

1. Detection of actions carried out and pending in the field of USR.
2. Prioritization of needs
3. Find the root causes of the detected needs, i.e. the problems that have not been solved.
4. Prioritize unresolved problems
5. Proposing possible alternatives to solve the unresolved problems.
6. Substantiating the alternatives
7. Projecting policy or project objectives, suggesting the necessary organization for the implementation of the policy or project.

8. Establishment of participants and leaders of the bodies necessary for the implementation, operation, analysis, evaluation and correction of the policies or projects.

What is relevant here is the design of the formats or instruments for the elaboration of the policies, which can be found in the annexes of this document. However, the procedure is shown in this section in a flow chart.
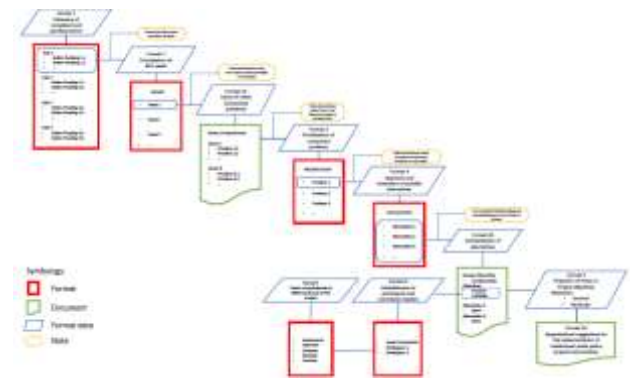

Figure 1 Flowchart for the elaboration of institutional MSW policies
Source: Own Elaboration

The formats or instruments designed are as follows:

Format 1. Detection of completed and pending actions.

Format 2. Hierarchization of MSW needs

Format 2A. Causal of needs

Format 3. Prioritization of unresolved problems

Form 4. Identification and evaluation of possible alternatives

Format 4A. Rationale for alternatives

Format 5. Projection of policy or project objectives

Format 5A. Organizational suggestions for policy or project implementation

Format 6. Establishment of participants and commission leaders

Format 7. Choice of participants in different phases of policy or project elaboration.

Conclusions

In the present work, emphasis was placed on the need to have institutional public policies on USR, that they exist in general, guiding documents in the institution under study, that there are also actions in the field of University Social Responsibility but that there are still areas of opportunity, for which it is necessary to have the appropriate procedures that serve as a guide for those interested in developing proposals in this area for their faculties or areas of work or in general for the educational institution.

Taking as a basis that being socially responsible means being aware of the impacts generated by the actions of each and every one of the stakeholders, reducing those that are negative or harmful, and that in the courses given on the topic, the participants were interested in having their proposals for institutional public policies taken into account, as they considered USR a priority for those who strive to improve their performance with social responsibility; it follows that friendly instruments or guides should be provided to those interested in elaborating proposals so that they can raise them, regardless of their area of knowledge or experience.

Therefore, the procedure and instruments presented in this document are considered an important contribution to the development of institutional public policies on university social responsibility, being the main recipients those responsible for guiding the formulation and implementation of policies and strategies in this area but benefiting a larger group that make up the stakeholders of the educational institution under study.

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Appendix 1

Format 1: Identification of completed and pending actions on MSW in your area of work

Axes	Impact	Management in	Actions carried out	Evidences	Pending actions
Campus Responsable	Organisation (Authorities, teaching and non-teaching staff, suppliers)	- Procedures - Work climate - HR management - Democratic processes - Environment			
Professional Training Citizenship	Education (Students)	- Academic training - Vocational training			
Social Management of Knowledge	Knowledge (Teachers and researchers) -	- Knowledge production and management - Research - Epistemological models			
Social Participation of Knowledge	Participation (Civil society Private sector Public sector, etc.)	- Community participation - (linkage)			

Source: Own Elaboration

Appendix 2

Format 2 Ranking of unmet needs (pending actions) in terms of MSW in UAQ Evaluate from 1 to 3, 1 being the least serious or urgent and 3 the most serious or urgent

Need	Severity urgency		Total urgency				Total
	In relation to another time	In relation to another space	Campus Responsible (Organisation)	Vocational Training Citizenship (Education) Educacion)	Social Management of Knowledge (Knowledge)	Social Participation (Participation)	
1							Add
2							Add
3							Add

Source: Own Elaboration

Format 2A Description of the needs identified according to their hierarchical ranking. (Add as many as necessary to describe all the needs).

Name of the identified need: Name

Rationale of the identified need
The main cause of this need is "describe the cause".

Which makes the following unresolved problems prevalent:

Problem 1: Describe Problem 1
Problem 2: Describe Problem 2

Appendix 3

Format 3 Prioritization of unresolved problems (Add as many as necessary to cover all causes.)

Name of identified need: Name
Cause of identified need: Name

Assign a score from 1 to 3 depending on the degree of urgency in the area of concern, 1 being the least serious or urgent and 3 the most serious or urgent.

Incidence Problems to be Solved	Campus Responsable (Organization)	Vocational Training Citizenship (Education)	Social Management of Knowledge (Knowledge)	Social Participation (Participation)	Totals
P1					ADD
P2					ADD

Source: Own Elaboration

Appendix 4

Format 4 Evaluation of possible alternatives (Add as many as necessary to cover each problem).

Name of the identified need: Name
Cause of the identified need: Name
Problem to be solved: Name

Assign a score from 1 to 3 depending on the possibilities of intervention, effectiveness, and political feasibility, 1 being the least possibilities and 3 being the most possibilities.

	Selection criteria						
Evaluation alternatives	Capacity for intervention		Effectiveness		Political feasibility		Scores of alternatives
	Financial	Organizational	Resource efficiency	Efficiency of objectives	Social feasibility	Legal feasibility	
A1							ADD
A2							ADD

Source: Own Elaboration

Format 4A Analysis of the selected alternatives for problem solving

Name of the identified need: Name
Cause of the identified need: Name
Problem to be solved: Name

Alternative: name
Substantiate

Objectives of the alternative
Overall objective
Describe

Specific objectives
Describe

Projects for the selected alternative

1. Institutional project: Name
2. Institutional project: Name

Institutional project activities "Name"

Appendix 5

Format 5 Projection of objectives

"Name of the policy (alternative)"			
Indicators		Verifiers	External factors
General objective of the policy (long-term) General objective of the alternative			
Particular policy objectives	1		
	2		
	3		
"name of institutional project 1" (add sufficient name and objectives cells for each institutional project in format 3a)			
General objective of the project (short or medium term) General objective of the project			
Particular objectives of the project	1		
	2		
	3		

Source: Own Elaboration

Format 5A Organization for the implementation of the public policy projects and their activities (Fill in the whole format and fill in the table)

For the implementation of institutional project activities to carry out the proposed public policy, the following commissions and committees will be formed:

- Commission...
  – Committee...
  – Committee...
- Commission...
  – Committee...
  – Committee...
- Committee...
  – Committee...
  – Committee...

Appendix 6

Format 6 Establishment of participants and committee leaders

During their exercise, the commissions may discuss and decide to form sub-committees for particular exercises not covered by the initial policy.

The commissions shall be composed as follows:

Thematic commission	Leads	Participants
Commission of...		
Commission of...		
Commission of...		

Source: Own Elaboration

Appendix 7

Format 7 Election of participants in different phases of the project

Implementation, Operation, Analysis, Evaluation and Correction of Institutional Projects

(Fill in the table)

Project	Social and legal implementation	Operation	Analysis/evaluation	Correction
Institutional project of	Council through first level officials	First level officials (coordinated and concerted) through the secretariats of _____.	Committee _____ analyst (officials) through measurement of "desired" and "achieved" effects, comparative studies between the two and issuing recommendations	First level officials, through secretariats ____, based on results and recommendations obtained from the analysis.
Council institutional project	Through first level officials.	First level officials (coordinated and concerted) through the secretariats _____	Committee _____ analyst (officials) through measurement of "desired" and "achieved" effects, comparative studies between the two and issuing recommendations.	First level officials, through secretariats ____, on the basis of results and recommendations obtained from the analysis.

Source: Own Elaboration

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Clearly explain the problem to be solved and the central hypothesis.

Explanation of sections Article.

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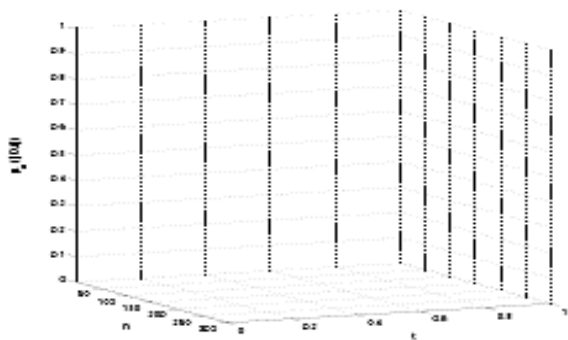
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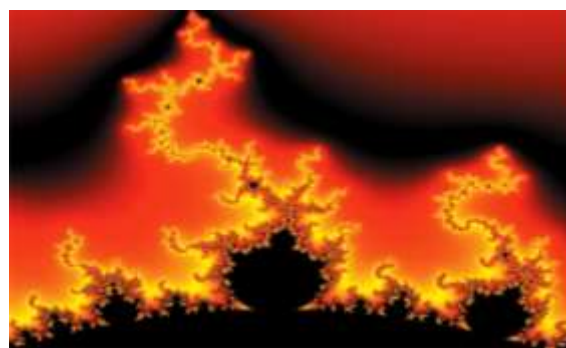
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