

Administration of Sustainable Environmental Information Technologies based on COBIT5 E ISO 26000

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Abstract

The study uses way as inputs of environmental aspects to the environmental norm ISO 26000 and for Government aspects of IT to the frame of work Cobit 5.0:2012. This research work does not try to define what the best input would be but to determine if it is feasible to incorporate aspects way environmental into IT government and as study stage appeared to Cobit 5.0:2012 and the ISO 26000. This study work is one of the several for which environmental way will change the input to itself of sustainability and the IT govern.

The study determines the activities of the environment and the IT government, a mapping is realized to determine the activities of environment that are related to those of IT government who allows to define limits to define the model of IT government sustainable, this sustainable model will become stronger with activities of IT government that need to be implemented by environmental average approach, new activities of environment that joined IT government and new process with targets I come up environmental for IT government.

The result of the work will allow to the companies to apply a IT government frame with environmental average approach that they project to the sustainable and efficient future, with aptitude to create managerial value for the organizations and reduce costs to help to maintain the benefits.

Keywords: COBIT 5.0:2012, ISO 26000, Environment, Sustainability, Government of Technologies of Information.

INTRODUCTION

At present there are factors of risk of continuity of the business as: the deceleration in China, the low oil prices and the geopolitical tensions. The International Monetary Fund worried about these things warns the significant risks that run the main economies of market and decrease of the world economic growth for 2016 and 2017, this current economic environment, generates an ideal climate so that the organizations are projected to a more sustainable and efficient future, with aptitude to create managerial value for the organizations and reduce costs to help to maintain the benefits. [1 [] 2].

The sustainability is more and more important and it is considered to be a fundamental competition of the high direction, it has a multidimensional affectation since it generates changes in the commercialization, investment, innovation, managerial and human conduct [2]

ISACA, in its article of sustainability [2], indexes the definition of the doctor Norwegian Gro Harlem Brundtland where it indicates that the sustainability is “to satisfy the needs for the present without compromising the aptitude of the future generations to satisfy its needs” [3], while the International organization for Standardization (ISO) and the European Union (EU) indicate that the sustainability “implies a balanced approach so that the organizations integrate the worries of the actors in the operations of the business, in a way that try to benefit the organization, as well as to its internal and external actors” [4] ISACA 2011 supports that the sustainability is related to the normative fulfillment, the managerial ethics and the environment, as for the sustainability terminology that it relates to “Triple P” (persons, planet and profit), “managerial social responsibility” (RSE) and “be ecological” [2]

The Technology has turned into an authentic strategic ally of the companies, beyond a simple support. That's why it is necessary that the information Systems of the company provide the value and the efficiency that both the business and the users demand. To confirm it, it is advisable to realize first of all a process of evaluation and diagnosis of the Government of the Information technologies (from now on, IT) of the organization. The analysis of the IT Government, in the frame of a strategic reflection, is going to allow identifying the valuable aspects according to the contribution of optimization of the IT function inside the organizations that want to compete at the first level. [3].

In this stage, they introduce the concept of IT Government as the person in charge of integrating and of institutionalizing good IT management practices to guarantee that IT's in the company are the targets of the business support them and one makes use to the maximum of its information, the benefits are maximized, the opportunities are capitalized and competitive advantages are gained.

The contribution of this work is a frame of IT Government of Sustainable which allows focusing IT Government aspects with perspective Environmental Way generating a contribution to the investigations in the field of computing sustainability.

In this field the investigations show that [5], until the year 2011 there are multiple efforts in Green IT but models are missing, [6] There is a study in which one determines that only 36 articles have been published, in which the investigation is related to technology and environment and they analyze many of them from the partial point of view, for example they treat as computers more efficient “energetically”, servants' virtualization and other most technical aspects that center on the components being the same weakness of the sustainability without considering environmental way from an integral aspect, [7] it realizes a mapping between COBIT5.0, COBIT4.1 and GRI G4 but it does not conclude with any model solution, [8] this one study checks IT outstanding government frame, COBIT 5, to determine the grade in which one supports dimensions of the sustainability, especially in the related thing to the acquisition, use and disposition of the assets of IT. Based on the analyses, one concludes that COBIT 5 does not tackle appropriately the aspects of sustainability that the organizations face nowadays.

COBIT 5.0 Sustainable Limitations. The authors of the reference [8] affirm that COBIT 5.0:2012 has a sustainability deficit, because this one marked of government it does not bear in mind the environment and, partly, the social aspects of the triple line of base. “This defeat owes principally to the absence between the environmental and social alignment, and the needs and targets inside COBIT 5.0:2012” [9].

Square1: COBIT 5.0:2012 Limitations

No.º	Limitations
1	The absence of emphasis on the attitude of the organization towards the sustainability.
2	IT politics that surround the origin, use and disposition of the IT assets do not bear in mind the sustainability.
3	The absence of emphasis on application of sustainable IT politics on the daily operations of an organization.
4	The absence of emphasis on importance of the sustainable IT practices to guarantee the safety of the environment.
5	The absence of consideration of the responsibility of the organization of the society to act in a sustainable way.
6	The absence of considerations of insurance with a sustainable approach.
7	The absence of emphasis on the interdependences between the business and the environment in which it operates
8	The sustainability is not considered like a problem of managerial management.
9	Lacking in support to the control and the application of the management of the sustainable information
10	Narrow application to support the control and the implementation of an information system, sustainable

Source: [8]

2. BACKGROUND

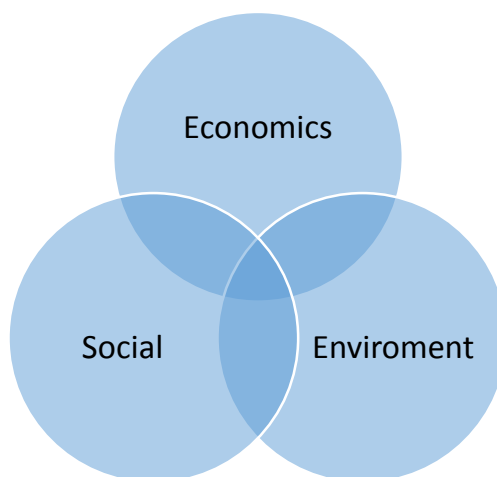
Develop the sustainability.

This is what it contributes, that an organization could attend to its needs, those of the current generations and those of the future generations without these turning out to be affected, across the delivery of economic, social and environmental benefits and this way improve across the time the human and environmental well-being, therefore at present the emergence of a new relation is valuable significantly between the man and the environment, which is captured inside what comprises the sustainable development in the last decade of last century and of the current one [10 [] 11] .

Sustainability tries to maintain a system with a complete structure across the time. A sustainable system treats itself of surviving in not definite time, trying to avoid the resources extinction while in the economic ambience it means that one prevents the uses of resources from producing disruptions and collapses in the system [12].

Figure1:

Dimension of the sustainability business.



Source: The challenges for the sustainability business in the 21th century [10]

Norm ISO 26000

The norm ISO 26000 is a responsibility guide faced to the management of the integral Social responsibility developed by means of the making and with a global approach, of the multiple interested parts directed by the International organization of Standardization (ISO) and that also it contributes to a sustainable development, since includes social, economic and environmental ambiances.

The main target of this norm is offering support to the organizations so that they manage to contribute to the sustainable development, in addition to serving like advice instrument so that they could observe the social, environmental diversity, economic, juridical, cultural, political and organizational of the countries in which they operate, maintaining coherence with the international norms of behavior [15].

Govern of IT.

IT government, there are relations and processes that help the organization to reach its targets by means of the creation of value and establishment of a balance between the risks, the comeback of IT and its processes in order to promote a desirable conduct on the use of IT. That is to say that insures himself of evaluating the needs for the interested parts, the conditions and options to determine balanced and of agreed form the targets of the company that is chased; to establish the direction across establishment of priorities and the decision making; monitoring the performance and the fulfillment of agreed targets [16 [] 17] .

Sustainability in IT government context. “The Sustainability presented in IT governments is a way in which these companies achieve major profitability, many companies are creating structures of government that encourage the behavior that takes to the attainment of the targets of yield of the business of the company” [18], by what there is defined a government of sustainable IT as that one who encourages a behavior wished in the use of IT

It is important to mention that sustainable IT “*minimize the damage to the environment, in addition to changing the way that the companies carry out its activities and they invite the companies to promote low emission, as well as to save money and to leave a less trace in the environment, while it strains for expiring with the corporate targets.*” [19]

It is necessary to emphasize that strategy of a IT sustainable debit to be aligned by the strategy of *sustainability* of the whole company, for the purpose of minimizing the negative economic, environmental and social impacts of an activity. [6]

Cobit5:2012.

It represents a frame for IT government, and the set of hardware destined to give support to the managers to diminish any type of existing distance between the targets of business, the technical questions and the businesses risks, also it allows the development of political and good practices that guarantee a better control of the technologies of information in any company or organization, emphasizing the fulfillment of the regulations and of such a way supports in the creation of values of the organization from IT, in the management of the risk and to guarantee the fulfillment, continuity, availability, safety and privacy. COBIT5:2012 is the only frame that it integrates several standard and IT better practices, since it includes all the knowledge of the frame of ISACA [20].

Values: Relatively to the previous versions, COBIT5:2012 it presents new conceptual ideas, between which he proposes the beginning that 3, [21] mention in Square 1.

Square 1: Beginning of COBIT5:2012.

No.	Values	Description
1	To satisfy the needs for the interested parts	It focuses so much in the targets in cascade as in the value creation between the actors who can wait for IT values variety.
2	To cover the company end - a-extremo	It indicates that COBIT does not focus only on IT department, if not that in fact the whole company includes for which also provides a handlebar for the integration of the managerial management and the creation of value by means of the specification of the functions, to activities and relations.
3	To apply the only reference frame integrated.	It exhibits that the COBIT target is, to be a reference frame and to facilitate an integration handlebar for its use with other frames.
4	To make an approach possible holístico	It exhibits as there are related the components of the government of technologies of information and provide a set of critical factors of success.
5	To separate the government of the management	It indicates that COBIT5:2012, the governance and the management separates clearly.

Source: It governance implementation: a tool design of COBIT5 roadmap [21].

IT processes of Government of COBIT

According to [22], COBIT5:2012, it maintains separated the areas of government and management, of which the government area is provided with five processes that the called domino covers to evaluate, to direct and to continue (EDM) which are:

Domain	Process	Description of the process
EDM01	To guarantee the configuration and the maintenance of the structure of government	He analyzes and articulates the requests for IT government of the company and starts and keeps the structures, processes and practices effective facilitators, with clarity of the responsibilities and the authority to reach the mission, the goals and targets of the company
EDM02	To assure the benefits delivery	To optimize the contribution to the value of the business from the processes of business, of IT services and things of IT of the investment done by IT to a few acceptable costs
EDM03	To guarantee the risk optimization	To make sure than the appetite and the tolerance to the risk of the company be understood, articulate and communicate and

cycle and to implement programs of efficient progress.																				
5.1.5 Rationalization of energy means inside the organization.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5.1.6 To inform the emission of GEI in the organization and the adopted measurements.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5.2 Adaptation to the climate change																				
5.2.1 To analyze and identify irrigations and opportunities in the environment and its possible climate changes to minimize damages.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5.2.2 To establish and implement measurements for the adaptation before the climate change.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6 Protection of the environment, the biodiversity and restoration of the natural habitats																				
6.1 To identify and take measures on the possible impacts to the ecosystem.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6.2 To establish and implement Strategies of Administration of Ecosystems.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6.3 To analyze, to Establish and implement measurements of protection, of the possible affected ecosystems.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6.4 To establish and implement measurements for the prevention and minimization of the possible impacts in the affected ecosystems.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6.5 Report of results and the measurements taken before the analysis of the possible affected ecosystems.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7. Pursuit and Control																				
7.1 To realize reports of pursuit of performance of the matters of environmental responsibility.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7.2 To obtain cross-check of the information obtained on the part of the interested parties and to exhibit the points that are not included.	X	X	X	X	X	X	X	X	X	X	●	X	X	X	X	X	X	X	X	X

Source: Proper making based on the guide of social responsibility ISO26000:2010 [24] and COBIT5:2012 [23].

Mapping between the activities of the process EDM02 of COBIT5:2012 and the guide of social responsibility ISO26000:2010

ISO26000:2010	COBIT5:2012											
	EDM02 - to Assure the Delivery of Benefits											
1. Company or Organization	EDM02.01 - to Evaluate				EDM02.02 - to Face				EDM02.03 - to Supervise			
	1.4 To establish Timetable of Activities.	X	X	X	X	X	X	X	X	X	X	X
1.5 Definition of the Intention of the organization.	X	X	X	X	X	X	X	X	X	X	X	X
1.6 Analysis and Definition of the Scope of the organization.	X	X	X	X	X	X	X	X	X	X	X	X
2. Recognition of Environmental responsibility												

prepare the GEI emission in the organization.																				
5.1.4 To identify aspects of the use of fuels with approach to the life cycle and to implement programs of efficient progress.	X	X	X	X	X	X	X	X	X	X	●	X	X	X	X	X	X	X	X	X
5.1.5 Rationalization of energy means inside the organization.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5.1.6 To inform the emission of GEI in the organization and the adopted measurements.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5.2 Adaptation to the climate change																				
5.2.1 To analyze and identify irrigations and opportunities in the environment and its possible climate changes to minimize damages.	X	X	●	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5.2.2 To establish and implement measurements for the adaptation before the climate change.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6. Protection of the environment, the biodiversity and restoration of the natural habitats																				
6.1 To identify and take measures on the possible impacts to the ecosystem.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6.2 To establish and implement Strategies of Administration of Ecosystems.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6.3 To analyze, Establish and implement measurements of protection, of the possible affected ecosystems.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6.4 To establish and implement measurements for the prevention and minimization of the possible impacts in the affected ecosystems.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6.5 Report of results and the measurements taken before the analysis of the possible affected ecosystems.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7. Pursuit and Control																				
7.1 To realize reports of pursuit of performance of the matters of environmental responsibility.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	●	X	X
7.2 To obtain cross-check of the information obtained on the part of the interested parties and to exhibit the points that are not included.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Source: Proper making based on the guide of social responsibility ISO26000:2010 [24] and COBIT5:2012 [23].

Mapping between the activities of the process EDM03 of COBIT5:2012 and the guide of social responsibility ISO26000:2010

COBIT5:2012	EDM03 - to Assure the Optimization of the Risk															
	To evaluate						To face						To supervise			
ISO26000:2010	1. To determine the level of risks related to IT that the company is ready to take up office to expire with its targets (committee of risk).	2. To evaluate and to support proposal of thresholds of tolerance the risk IT opposite to the acceptable levels of risk and opportunities for the company.	3. To determine IT grade of alignment of the strategy of risks with the strategy of managerial risks.	4. To evaluate proactivamente the risk factors IT before the hanging strategic decisions on the company and to evaluate that the decisions of the company are in accordance with the strategy of risks.	5. To determine if the use of IT is subject to an evaluation and suitable evaluation of risk, according to the described in the social responsibility and environmental standard.	6. To evaluate the activities of management of risks to guarantee its alignment with the capacities of the company from the business related to IT and the tolerance of the IT risks to the business.	1. To promote a culture of the risks IT and to impel the company to a proactive risk identification of IT, opportunities and environmental issues in the business.	2. To face the integration of the operations and IT risks strategy with the decisions and strategic managerial actions.	3. To face the making of plans of communication of risks (covering all the levels of the company), as well as the release of actions of risk.	4. To face the implantation of mechanisms adapted to answer quickly to the changeable risks and to notify immediately at the adapted management levels, supported beginning of climbed agreed (than to report, when, where).	5. To face so that the risk, the opportunities, the problems and worries could be identified and notified by any person in any moment. The risk must be managed in accordance with the politics and procedures released and.	6. To identify the targets and key indicators of the processes of government and management of risks to be monitored and to assess the company's work with risk and to identify the opportunities.	1. To supervise until point manages the risk profile inside the thresholds of appetite of risk.	2. To supervise the goals and metric key of management of the processes of government and management of the risk with regard to the future, to assess the source of the deviations and to initiate operational actions to tackle.	3. To facilitate the review on the main interested parts of the process of the company towards the identified targets.	4. To inform any problem of management of risks to the Advice or to the Committee of Direction.
1. Company or Organization																
1.1	To establish Timetable of Activities.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.2	Definition of the Intention of the organization.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.3	Analysis and Definition of the Scope of the organization.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2. Recognition of Environmental responsibility																
2.1	Recognition of the Interested parts and its interests.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2.2	To identify the activities of the organization and of the interested parts.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2.3	To identify the laws and applicable regulations.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2.4	To check the fulfillment grade with regard to the environmental laws.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2.5	To spread the relation between the interests of the interested parts and the organization, as well as its fulfillment grade with the environmental laws.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3. Prevention of the contamination																

6.5 Give a report of results and the measurements taken before the analysis of the possible affected ecosystems.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7. Pursuit and Control																
7.1 To realize reports of pursuit of performance of the matters of environmental responsibility.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7.2 To obtain cross-check of the information obtained on the part of the interested parties and to exhibit the points that are not included.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Source: Proper making based on the guide of social responsibility ISO26000:2010 [24] and COBIT5:2012 [23].

4.2 To measure, register and inform the environmental impact of the use of the natural resources.	X	X	X	X	X	X	X	X	X	X	X	X	X
4.3 To establish and implement efficiency measurements for the use of natural resources.	X	X	X	X	X	X	X	●	X	X	X	X	X
4.4 To identify alternatives for the sustainable natural resources consumption.	X	X	X	X	X	X	X	X	X	X	X	X	X
4.5 To establish evaluation schemes to promote the sustainable procurement.	●	X	X	X	X	X	X	X	X	X	X	X	X
4.6 To report about the use of natural resources, impacts and adopted measurements.	X	X	X	X	X	●	X	X	X	X	X	X	X
5. Protection of the environment, the biodiversity and restoration of the natural habitats													
5.1 Mitigation of the climate change													
5.1.1 To identify sources of emission of GEI (Gases of effect of Hothouse).	X	X	X	X	X	X	X	X	X	X	X	X	X
5.1.2 To measure and register the emission of GEI in the organization and its environmental impact.	X	X	X	X	X	X	X	X	X	X	X	X	X
5.1.3 To establish and implement measurements to minimize and to prepare the GEI emission in the organization.	X	X	X	X	X	X	X	X	X	X	X	X	X
5.1.4 To identify aspects of the use of fuels with approach to the life cycle and to implement programs of efficient progress.	X	X	X	X	X	X	X	X	X	X	X	X	X
5.1.5 Rationalization of energy means inside the organization.	●	X	X	X	X	X	X	X	X	X	X	X	X
5.1.6 To inform the emission of GEI in the organization and the adopted measurements.	X	X	X	X	X	X	X	X	X	X	X	X	X
5.2 Adaptation to the climate change													
5.2.1 To analyze and identify irrigations and opportunities in the environment and its possible climate changes to minimize damages.	X	X	X	X	X	X	X	X	X	X	X	X	X
5.2.2 To establish and implement measurements for the adaptation before the climate change.	X	X	X	X	X	X	X	X	X	X	X	X	X
6. Protection of the environment, the biodiversity and restoration of the natural habitats													
6.1 To identify and take measures on the possible impacts to the ecosystem.	X	X	X	X	X	X	X	X	●	X	X	X	X
6.2 To establish and implement Strategies of Administration of Ecosystems.	X	X	X	X	X	X	X	●	X	X	X	X	X
6.3 To analyze, establish and implement measurements of protection, of the possible affected ecosystems.	X	X	X	X	X	X	X	X	●	X	X	X	X
6.4 To establish and implement measurements for the prevention and minimization of the possible impacts in the affected ecosystems.	X	X	X	X	X	X	X	X	X	X	X	X	X
6.5 Report of results and the measurements taken before the analysis of the possible affected ecosystems.	X	X	X	X	X	X	X	X	X	X	X	X	X
7. Pursuit and Control													
7.1 To realize reports of pursuit of performance of the matters of environmental responsibility.	X	X	X	X	X	X	X	X	X	X	X	X	X
7.2 To obtain cross-check of the information obtained on the part of the interested parties and to exhibit the points that are not included.	X	X	X	X	X	X	X	X	X	X	X	X	X

Source: Proper making based on the guide of social responsibility ISO26000:2010 [24] and COBIT5:2012 [23].

4.11 To establish evaluation schemes to promote the sustainable procurement.	x	x	x	x	x	x	x	x	x	x
4.12 To report about the use of natural resources, impacts and adopted measurements.	x	x	x	x	x	x	x	x	x	x
5. Protection of the environment, the biodiversity and restoration of the natural habitats										
5.1 Mitigation of the climate change										
5.1.1 To identify sources of emission of GEI (Gases of effect of Hothouse).	x	x	x	x	x	x	x	x	x	x
5.1.2 To measure and register the emission of GEI in the organization and its environmental impact.	x	x	x	x	x	x	x	x	x	x
5.1.3 To establish and implement measurements to minimize and to prepare the GEI emission in the organization.	x	x	x	x	x	x	x	x	x	x
5.1.4 To identify aspects of the use of fuels with approach to the life cycle and to implement programs of efficient progress.	x	x	x	x	x	x	x	x	x	x
5.1.5 Rationalization of energy means inside the organization.	x	x	x	x	x	x	x	x	x	x
5.1.6 To inform the emission of GEI in the organization and the adopted measurements.	x	x	x	x	x	x	x	x	x	x
5.2 Adaptation to the climate change										
5.2.2 To analyze and identify irrigations and opportunities in the environment and its possible climate changes to minimize damages.	x	x	x	x	x	x	x	x	x	x
5.2.3 To establish and implement measurements for the adaptation before the climate change.	x	x	x	x	x	x	x	x	x	x
6. Protection of the environment, the biodiversity and restoration of the natural habitats										
6.1 To identify and take measures on the possible impacts to the ecosystem.	x	x	x	x	x	x	x	x	x	x
6.2 To establish and implement Strategies of Administration of Ecosystems.	x	x	x	x	x	x	x	x	x	x
6.3 To analyze, establish and implement measurements of protection, of the possible affected ecosystems.	x	x	x	x	x	x	x	x	x	x
6.4 To establish and implement measurements for the prevention and minimization of the possible impacts in the affected ecosystems.	x	x	x	x	x	x	x	x	x	x
6.5 Report of results and the measurements taken before the analysis of the possible affected ecosystems.	x	x	x	x	x	x	x	x	x	x
7. Pursuit and Control										
7.3 To realize reports of pursuit of performance of the matters of environmental responsibility.	x	x	x	x	x	x	x	x	x	x
7.4 To obtain cross-check of the information obtained on the part of the interested parties and to exhibit the points that are not included.	x	x	●	x	x	●	x	x	x	x

Source: Proper making based on the guide of social responsibility ISO26000:2010 [24] and COBIT5:2012 [23].

Alignment of the activities of the norm internment ISO26000:2010 with IT processes of management of "COBIT5:2012".

The present analysis consists of identifying which of the activities of sostenibilidad way environmental modality to the norm ISO26000:2010, is aligned to the processes of management of managerial YOU of the referential frame COBIT5:2012, the same one that sees 11 reflected in *Cuadro.

Square 2. Alignment between the processes of management of COBIT5:2012 and activities of the guide of social responsibility of social responsibility ISO26000:2010.

COBIT5:2012		ISO26000:2010
Domain	Process	Activities
APO01	To manage IT management frame	1.3 Analysis and definition of the scope of the organization.
APO03	To manage the managerial architecture	2.1 Recognition of the interested parts and its interests.
		2.2 To identify the activities of the organization and of the interested parts.
APO04	To manage the innovation	4.5 To establish evaluation schemes to promote the sustainable procurement.
		5.1.5 Rationalization of energy means inside the organization.
APO12	To manage the risk	3.1 To identify aspects and impacts of the decisions and activities.
		3.4 To measure and register the significant sources of contamination and its risks in the environment.
		3.7 To report about the significant sources of contamination, risks and adopted measurements.
		4.2 To measure, register and inform the environmental impact of the use of the natural resources.
		4.6 To report about the use of natural resources, impacts and adopted measurements.
		5.1.2 To measure and register the emission of GEI in the organization and its environmental impact.
		5.1.6 To inform the emission of GEI in the organization and the adopted measurements.
		5.2.1 To analyze and identify irrigations and opportunities in the environment and its




		possible climate changes to minimize the damages.
		5.2.2 To establish and implement measurements for the adaptation before the climate change.
		6.1 To identify and take measures on the possible impacts to the ecosystem.
		6.4 To establish and implement measurements for the prevention and minimization of the possible impacts in the affected ecosystems.
DSS02	To manage requests and service incidents	3.6 To establish and implement prevention programs before accidents.
DSS04	To manage the Continuity	
MEA01	To supervise, to evaluate and to value the yield and the continuity	4.5 To establish evaluation schemes to promote the sustainable procurement. 7.1 To realize reports of pursuit of performance of the matters of environmental responsibility.
MEA03	To supervise, to evaluate and to value the continuity with the external requests	2.3 To identify the laws and applicable regulations. 2.4 To check the fulfillment grade with regard to the environmental laws.

Source: Proper making, based in COBIT5:2012 [23] and the guide of social responsibility ISO26000:2010 [24].




Identification of Limitations.




Based on the mapping carried out between the obtained activities of the guide of social responsibility ISO26000:2010 opposite to the activities corresponding to IT processes of the frame of government COBIT5:2012, there was identified the type of limitation that they present IT government frame earlier mentioned to fulfill with the characteristics of sostenibilidad environmental way which carried out in Square 13, adopting the symbology explained in *Square 12.





Square 3. Symbology used in the limitations



Simbología	
Symbol	Meaning
	Approach
	Activity
	None




Source: Proper making





Activity	Type	Justification
2. Recognition of Environmental responsibility		
2.1 Recognition of the interested parts and its interests		<p>IT activity of the processes of government COBIT5:2012, which expires partly with this activity is:</p> <ul style="list-style-type: none"> • The activity 1, of the section to Evaluate of the process EDM02 <p>Since it satisfies as for the recognition of the interests of the interested parts, bearing in mind that it is necessary to know previously those who are the interested parts, with the difference that here does it to itself according to IT, while in the activity 2.1 regarding the guide of social responsibility ISO26000:2010, considering the environment.</p>
2.2 To identify the activities of the organization and of the interested parts		<p>Dice to that there does not exist in any of the processes of IT government COBIT5:2012 any activity that expires with what there stipulates the activity 2.2 regarding the guide of social responsibility ISO26000:2010, to manage to expire with earlier mentioned, it is necessary to consider to be the inclusion of the following activity:</p> <p>“To identify the activities so much of IT frame of government as of the interested parts, and its possible impacts to the environmental responsibility”</p>
2.3 To identify the laws and applicable regulations		<p>YOUR activities of the processes of government COBIT5:2012, which expire partly with this activity are:</p> <ul style="list-style-type: none"> • The activity 1, of the section to Evaluate of the process EDM01. • The activity 3, of the section to Evaluate of the process EDM01. • The activity 1, of the section to Evaluate of the process EDM05. <p>Since they satisfy as for the identification of applicable laws, with the difference that, in the activities earlier mentioned, is focused on the laws applicable to IT government, while in the activity 2.3 regarding the guide of social responsibility ISO26000:2010, the laws applicable to the activities and decisions related to the environment.</p>


<p>2.4 To check the fulfillment grade with regard to the environmental laws.</p>		<p>IT activities of the processes of government COBIT5:2012, which expire partly with this activity are:</p> <ul style="list-style-type: none"> • The activity 4, of the section to Supervise of the process EDM01. • The activity 6, of the section to Supervise of the process EDM01. • The activity 3, of the section to Supervise of the process EDM05. <p>Since they satisfy as for assuring that the relations and activities should expire with the due and applicable legal frame, in addition to measuring the fulfillment grade with regard to the applicable laws, with the difference that in earlier mentioned they focus to IT, while the activity 2.4 to the environmental laws.</p>
<p>2.5 To spread the relation between the interests of the interested parts and the organization, as well as its fulfillment grade with the environmental laws.</p>		<p>Because there does not exist in any of the processes of IT government COBIT5:2012 any activity that expires with what there stipulates the activity 2.5 regarding the guide of social responsibility ISO26000:2010, to manage and expire with earlier mentioned, it is necessary to consider the inclusion of the following activities:</p> <p>“To spread publicly the interested parts, the relation between its interests and those of the frame of IT government and the grade of fulfillment with the applicable environmental laws”.</p>
<p>3 Prevention of the contamination</p>		
<p>3.1 Identify appearances and impacts of the decisions and activities</p>		<p>The activities of the processes of government of IT COBIT5:2012, that fulfil partly with this activity are:</p> <ul style="list-style-type: none"> • The activity 4, of the section Evaluate of the process EDM03. • The activity 1, of the section Orient of the process EDM03. <p>Since, they satisfy directly to the identification of impacts(risks) previously of the decisions to take with the difference that in the above-mentioned does it to him with an approach to the irrigations of IT of the decisions whereas in the activity 3.1 focuses to the impacts (risks), of the decisions and activities that affect to the surroundings.</p>




3.2 Identify the sources of pollution and waste.		Die to the nonexistence of some activity in the processes of government of IT COBIT5:2012 that fulfil with what stipulates the activity 3.2 concerning the guide of social responsibility ISO26000:2010 , to attain fulfil with the above-mentioned, has to consider the inclusion of the following activity: “Identify the sources of pollution and of waste related to the activities of the frame of government of IT”
3.3 Identify and avoid the utilization of chemical products forbidden by the law.		Given the nonexistence of some activity in the processes of government of IT COBIT5:2012 that fulfil with what stipulates the activity 3.2 concerning the guide of social responsibility ISO26000:2010 , to attain fulfil with the above-mentioned, has to consider the inclusion of the following activity: “Identify and avoid the utilisation of chemical products forbidden by the law in the frame IT government”
3.4 Establish and implement measures to warn the pollution		Because of the nonexistence of some activity in the processes IT government COBIT5:2012 that satisfy what stipulates the activity 3.5 concerning the guide of social responsibility ISO26000:2010 , to attain satisfy the above-mentioned, has to consider the inclusion of the following activity: “Establish and implement measures to warn the pollution and the generation of waste inside the frame IT government.”
3.5 Establish and implement programs of prevention in front of accidents.		Considering the nonexistence of some activity in the processes IT government COBIT5:2012 that satisfy what stipulates the activity 3.6 concerning the guide of social responsibility ISO26000:2010 , to attain satisfy the above-mentioned, has to consider the inclusion of the following activity: “Establish and implement a program of prevention, preparation and a plan of emergency in front of accidents and environmental incidents so many interns like external to the frame IT government, that involve to the parts interested pertinent.”
4 Sustainable use of the resources		




<p>4.1 Establish and implement measures of efficiency for the use of natural resources.</p>		<p>La actividad de los procesos de gobierno de TI COBIT5:2012, que cumple en parte con esta actividad es la siguiente:</p> <ul style="list-style-type: none"> • la actividad 3, de la sección Orientar del proceso EDM04. <p>Ya que, satisface en cuanto al establecimiento de medidas para el uso eficiente de los recursos, con la diferencia de que en la actividad antes mencionada se lo realiza con un enfoque a los recursos de TI, mientras que la actividad 4.3 referente a la guía de responsabilidad social ISO26000:2010, se enfoca al uso de recursos naturales.</p>
<p>4.2 Establish diagrams of evaluation to promote the sustainable acquisitions</p>		<p>The activity of the processes of government of IT COBIT5:2012, that fulfils partly with this activity is:</p> <ul style="list-style-type: none"> • The activity 1, of the section Evaluate of the process EDM04. <p>Since it satisfies regarding the evaluation of strategies and acquisition of resources, with the difference that in the above-mentioned activity does it regarding the acquisitions of resources of IT, mention that the activity 4.5 concerning the guide of social responsibility ISO26000:2010 it refers to the acquisition of products and sustainable services. However, to satisfy completely the described in the activity 4.5, is necessary the inclusion of the following activity:</p> <p>“Establish diagrams for the evaluation of the environmental exert, of the products and services that purchase inside the frame of government of IT, and give preference to the acquisition of products that minimize his impacts.”</p>


4.3 Inform about the use of natural resources, impacts and measures adopted		<p>The activity of the processes of government of IT COBIT5:2012, that fulfils partly with this activity is:</p> <ul style="list-style-type: none"> • The activity 1, of the section Orient of the process EDM04. <p>Since it satisfies regarding informing on the use or management of resources, with the difference that in the above-mentioned refers to the resources of IT, whereas in the activity 4.6 concerning the guide of social responsibility ISO26000:2010 it refers to the natural resources.</p> <p>However, to attain satisfy completely the described in the activity 3.4, is necessary the inclusion of the following activity:</p> <p>“Spread publicly the natural resources and his significant use in the frame of government of IT, as well as his impacts to the environment and measures adopted for his mitigation.”</p>
5 Protection of the environment, the biodiversity and restoration of the natural habitats		
5.1 Mitigation Of the climatic change		
5.1.1 Identify sources of broadcast of GEI (GREEN HOUSE GASES)		<p>Because of the nonexistence of some activity in the processes of government of IT COBIT5:2012 that fulfil with what stipulates the activity 5.1.1 concerning the guide of social responsibility ISO26000:2010, to attain fulfil with the above-mentioned, has to consider the inclusion of the following activity:</p> <p>“Identify direct and indirect sources of accumulation of broadcasts of GEI inside the frame of government of IT and define the scope of his responsibility.”</p>
5.1.2 Measure and register the broadcasts of GEI in the organization and his environmental impact		<p>The activity of the processes of government of IT COBIT5:2012, that fulfils partly with this activity is:</p> <ul style="list-style-type: none"> • The activity 1, of the section Evaluate of the process EDM03. <p>Since, it satisfies regarding the measurement of impacts (risks), with the difference that in the before described activity does it to him with an approach to the risks related to the YOU, whereas in the activity 5.1.2 concerning the guide of social responsibility ISO26000:2010, it focuses to the</p>

		risks related to the broadcasts of GEI that affect to the environment.
5.1.3 Identify appearances of the use of fuels with approach to the cycle of life and implement programs of efficient improvement		<p>The activity of the processes IT government COBIT5:2012, that fulfils partly with this activity is:</p> <ul style="list-style-type: none"> • The activity 3, of the section Orient of the process EDM02. <p>Since it satisfies regarding the efficient improvement of the use of fuels, however, to attain satisfy completely the described in the activity 5.1.4, it is necessary the inclusion of the following activity: “Identify the quantity and the type of significant use of fuels inside the frame IT government and implement programs to improve his efficiency.”</p>
5.1.4 Rationalization of Energetic Means inside the organization		<p>The activity of the processes of government of IT COBIT5:2012, that fulfils partly with this activity is:</p> <ul style="list-style-type: none"> • The activity 1, of the section Evaluate of the process EDM04. <p>Since it satisfies regarding the purchase of goods energetically efficient, however, to attain satisfy completely the activity 5.1.5, it is necessary the inclusion of the following activity: “Make savings of energy while it was possible inside the frame of government of IT, including the purchase and development of goods and products energetically efficient.”</p>
5.1.6 Inform the taking of measures of the broadcasts of GEI in the organization		<p>Considering the nonexistence of some activity in the processes IT government COBIT5:2012 that fulfil with what stipulates the activity 5.1.6 concerning the guide of social responsibility ISO26000:2010, to attain fulfil with the above-mentioned, has to consider the inclusion of the following activity: “Inform on his significant broadcasts of GEI inside the frame of Government of IT and the measures to adopt to warn the impact to the environment.”</p>
5.2 Adaptation to the climatic change		
5.2.1 Analyze and identify irrigations and opportunities in the surroundings and his		<p>The activities of the processes IT government COBIT5:2012, that fulfil partly with this activity are:</p>

possible climatic changes to minimize damages.		<ul style="list-style-type: none"> • The activity 3, of the section Evaluate of the process EDM02. • The activity 1, of the section Evaluate of the process EDM03. • The activity 4, of the section Evaluate of the process EDM03. <p>Since, they satisfy regarding the analysis and identification of risks related to the climatic changes, as well as the analysis of the opportunities that can arise during the climatic changes to reduce damages, with the difference that the above-mentioned focus in the opportunities, risks and impacts related to the IT, and the activity 5.2.1 concerning the guide of social responsibility ISO26000:2010 it focuses in the opportunities, risks and impacts made by the climatic changes.</p>
5.2.2 Establish and implement measures for the adaptation in front of the climatic change.		<p>The activity of the processes of government of IT COBIT5:2012, that fulfils partly with this activity is:</p> <ul style="list-style-type: none"> • The activity 4 corresponding, to the section Orient of the process EDM03. <p>Since it satisfies regarding the implementation of measures to answer in front of impacts with the difference that in the before described activity does it focusing in the variable risks of the organization, whereas in the activity 5.2.2 concerning the guide of social responsibility ISO26000:2010 it focuses in the variable risks related to the climatic changes considering his sphere of influence (parts interested).</p>
6 Protection of the environment, the biodiversity and restoration of the natural habitats		

6.1 Identify and take measures on the possible impacts to the ecosystem		<p>The activities of the processes of government of IT COBIT5:2012, that fulfil partly with this activity are:</p> <ul style="list-style-type: none"> • The activity 1 corresponding, to the section Evaluate of the process EDM03. • The activity 3 corresponding to the section Orient of the process EDM04. <p>Since, they satisfy regarding the identification of risks and impacts, as well as with the establishment of measures of protection to minimize or delete said impacts, with the difference that in the above-mentioned activities does it to him with an approach to the risks and impacts related to the IT, and in the activity 6.1 concerning the guide of social responsibility ISO26000:2010 it does it with an approach to the risks that affect the biodiversity and the services of the ecosystem.</p>
6.2 Establish and implement Strategies of Administration of Ecosystems		<p>The activity of the processes of government of IT COBIT5:2012, that fulfils partly with this activity is:</p> <ul style="list-style-type: none"> • The activity 3, corresponding to the section Orient of the process EDM04. <p>Since it satisfies regarding the establishment of measures or strategies of administration, with the difference that in the before described activity does it focusing in the management of resources, whereas in the activity 6.2 concerning the guide of social responsibility ISO26000:2010 it focuses in the ecosystem (terrains, waters).</p>
6.3 Analyze, Establish and implement measures of protection, of the possible ecosystems affected.		<p>The activity of the processes of government of IT COBIT5:2012, that fulfils partly with this activity is:</p> <ul style="list-style-type: none"> • The activity 4, of the section Orient of the process EDM04. <p>Since it satisfies in the determination of measures of protection in front of possible impacts, with the difference that the before described focuses in the resources of IT, whereas the activity 6.3 concerning the guide of social responsibility ISO26000:2010, it focuses in the protection of possible ecosystems affected.</p> <p>However, to satisfy entirely this activity, is necessary the inclusion of the following:</p>

		<ul style="list-style-type: none"> • “Incorporate in the frame of government of IT, measures of protection of the possible ecosystems affected (natural habitats, rainforests, forests, runners of wild life, areas protected and agricultural terrains), considering besides to the wild animals”. • “Use progressively and in greater proportion products of providers that use technologies and processes more sustainable, inside the frame IT government.”
6.4 Establish and implement measures for the prevention and minimization of the possible impacts in the ecosystems affected.		<p>Considering the nonexistence of some activity in the processes of IT government COBIT5:2012 that fulfil with what stipulates the activity 6.4 concerning the guide of social responsibility ISO26000:2010, to attain fulfil with the above-mentioned, has to consider the inclusion of the following activity:</p> <p>“Establish and Implement practices of planning, design and operation, like forms to warn and minimize the possible impacts that affect to the ecosystem, resultant of the decisions taken inside the frame of government of IT.”</p>
6.5 Report of results and the measures taken in front of the analysis of the possible ecosystems affected.		<p>Taking into account the nonexistence of some activity in the processes of IT government COBIT5:2012 that fulfil with what stipulates the activity 6.5 concerning the guide of social responsibility ISO26000:2010, to attain fulfil with the above-mentioned, has to consider the inclusion of the following activity:</p> <p>“Register and inform on the measures taken regarding the analysis made of the ecosystems affected by the frame of IT government.”</p>
7- Follow-up and Control		
7.1 Make reports of follow-up of exert of the subjects of environmental responsibility.		<p>The activity of the processes of government of IT COBIT5:2012, that fulfils partly with this activity is:</p> <ul style="list-style-type: none"> • The activity 3, of the section Supervise of the process EDM02. <p>Since it satisfies regarding the establishment of measures or strategies of administration, with the difference that in the before described activity does it focusing in the management of resources, whereas in the activity 6.2 concerning the guide of</p>

		social responsibility ISO26000:2010 it focuses in the ecosystem (terrains, waters).
7.2 Obtain verification of the information obtained by part of the interested and expose the points that do not cover .		<p>The activities of the processes of IT government COBIT5:2012, that fulfil partly with this activity are:</p> <ul style="list-style-type: none"> • The activity 4, of the section Orient of the process EDM01. • The activity 3, of the section Orient of the process EDM05. • The activity 3, of the section Supervise of the process EDM05. <p>Since it satisfies regarding the verification of the information obtained by part of the interested, However, to attain satisfy entirely this activity, is necessary the inclusion of the following:</p> <ul style="list-style-type: none"> • “Provide a brief explanation of reason do not cover some points of environmental responsibility, to show that the frame IT government has done effort to cover all the important subjects.” • “Use a process of rigorous and responsible verification, in which the data and the information of environmental responsibility come from of a reliable source that allow verifying the accuracy of the same by part of the interested”.

Source: Own preparation

Activities proposed of environmental half sustainability. In base to the limitations identified in the *Picture 13 determined the need to include the activities described in the *Picture 14, to attain add characteristics of environmental half sustainability to the frame of IT government COBIT5:2012.

Picture 4: Activities of environmental half sustainability

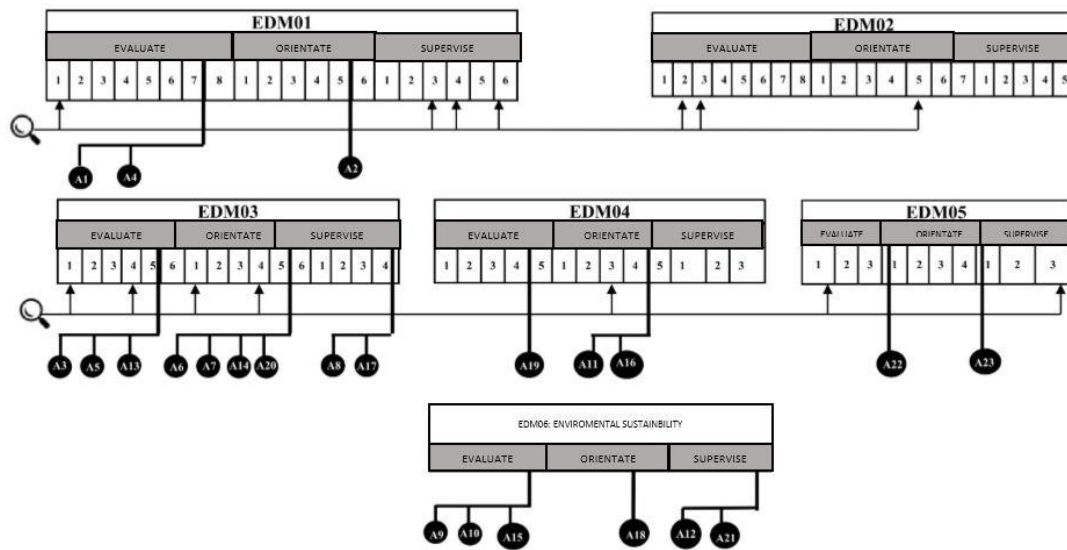
GO	Activities of environmental half sustainability for the frame of IT government
A1	Identify the activities so much of the frame of IT government as of the parts interested and his possible impacts to the environmental responsibility.
A2	Spread publicly the parts interested, the relation between his interests and the ones of the frame of IT government and the degree of fulfillment with the applicable environmental laws.
A3	Identify the sources of pollution and of waste related to the activities of the frame of IT government.
A4	Identify and avoid the utilization of chemical products forbidden by the law in the frame IT government.
A5	Measure and Register the sources of pollution and of generation of significant waste inside the frame IT government, in addition to the risks that these that made to the human health and the environment.
A6	Establish and implement measures to warn the pollution and the generation of waste inside the frame IT government.
A7	Establish and implement a program of prevention, preparation and a plan of emergency in front of accidents and environmental incidents so many interns like external to the frame IT government, that involve to the parts interested pertinent.
A8	Spread publicly the quantities and types of toxic materials that use or free in normal operations and in accidental releases inside the frame IT government, including the risks known that made to the human health and the environment and the measures that pretends assume to mitigate these risks.
A9	Identify the natural resources used inside the frame IT government.
A10	Identify alternative sources, sustainable, renewable and of low impact to complement or replace the use of resources no renewable inside the frame IT government.
A11	Establish diagrams for the evaluation of the exert environmental, of the products and services that purchase inside the frame IT government, and give preference to the acquisition of products that minimize his impacts.
A12	Spread publicly the natural resources and his significant use in the frame IT government, as well as his impacts to the environment and measures adopted for his mitigation.
A13	Identify direct and indirect sources of accumulation of broadcasts of GEI inside the frame IT government and define the scope of his responsibility.
A14	Establish and implement measures to warn and minimize progressively the broadcasts of GEI in the frame IT government, and boost similar actions in his sphere of influence.
A15	Identify the quantity and the type of significant use of fuels inside the frame IT government and implement programs to improve his efficiency.

A16	Make savings of energy while it was possible inside the frame IT government, including the purchase and development of goods and products energetically efficient.
A17	Inform on his significant broadcasts of GEI inside the frame IT government and the measures to adopt to warn the impact to the environment.
A18	Incorporate in the frame IT government, measures of protection of the possible ecosystems affected (natural habitats, rainforests, forests, runners of wild life, areas protected and agricultural terrains), considering besides to the wild animals.
A19	Use progressively and in greater proportion products of providers that use technologies and processes more sustainable, inside the frame IT government.
A20	Establish and Implement practices of planning, design and operation, like forms to warn and minimize the possible impacts that affect to the ecosystem, resultant of the decisions taken inside the frame IT government.
A21	Register and inform on the measures taken regarding the analysis made of the ecosystems affected by the frame IT government.
A22	Use a process of rigorous and responsible verification, in which the data and the information of environmental responsibility come from of a reliable source that allow verifying the accuracy of the same by part of the interested.
A23	Provide a brief explanation of reason do not cover some points of environmental responsibility, to show that the frame IT government has done effort to cover all the important subjects.

Source: own Preparation based in the guide of social responsibility. ISO26000:2010 [23]

Model of an IT government.

In base to the identification of limitations that presents the frame IT government COBIT5:2012 in front of the characteristics of environmental half sustainability of the guide of social responsibility ISO26000:2010, reflected in the *Picture 13 and to the activities proposed in the *Picture 14 to attain the inclusion of the same, elaborated the model of frame IT government with environmental half sustainability that shows



Source: Own Preparation, based in the frame of work of COBIT5:2012 [24].

Explanation of the new model.

To attain that, inside the frame IT government **COBIT5:2012** they consider characteristic of environmental half sustainability, determined afterwards of the identification of the limits in the *Picture 13, taking in account the activities of the fundamental matter environmental half sustainability obtained of the guide of social responsibility **ISO26000:2010**, that has to incorporate the following appearances:

Process EDM01: Ensure the establishment and maintenance of the theoretical frame of Government. In this process considered the inclusion of an approach of environmental half sustainability, to the following activities:

- a. **The activity 1** of the section **Evaluate**, that with the end to satisfy the **activity 2.3** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Analyze and identify the factors of the internal and external surroundings (legal obligations, contractual and regulatory) and tendencies in the surroundings of the **frame IT government** that can **influence in the environmental half sustainability**.”
- b. **The activity 3** of the section **Evaluate**, that with the end to satisfy the **activity 2.3** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Consider the external regulations, legal and contractual obligations **related to the environmental responsibility** and determine how have to be applied in the frame IT government of the company.”
- c. **The activity 4** of the section **Supervise**, that with the end to satisfy the **activity 2.4** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Keep the supervision on the point until which the **frame IT government** satisfies the obligations (regulations, legislations, common

laws, contractual), internal politics, standard and environmental **half guidelines.**”

- d. **The activity 6** of the section **Supervise**, that with the end to satisfy the **activity 2.4** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way, “Supervise the routine and regular mechanisms to guarantee that the use of IT fulfils with the notable obligations (regulatory, legislation, common laws, contractual), standard and environmental **half guidelines.**”

Besides, it considered the inclusion of the following activities:

- *In the section Evaluate.*
 - a. “1. Identify the activities so much of the frame IT government as of the parts interested and his possible impacts to the environmental responsibility.”
 - b. “4. Identify and avoid the utilization of chemical products forbidden by the law in the frame IT government.”
- *In the section Orient.*
 - a. “2. Spread publicly the parts interested, the relation between his interests and the ones of the frame IT government and the degree of fulfillment with the applicable environmental laws.”

Process EDM02. Ensure the Delivery of Profits. In this process considered the inclusion of an approach of environmental half sustainability, to the following activities:

- a. **The activity 1** of the section **Evaluate**, that with the end to satisfy the **activity 2.1** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Comprise the requests of the parts interested in **relation to the environment**; strategic subjects of **environmental sustainability**, such as the dependencies of **the environmental sustainability**; and comprise the technology and his capacities considering the current importance and potential of **the environmental sustainability** for the strategy of the frame IT government”.
- b. **The activity 3** of the section **Evaluate**, that with the end to satisfy the **activity 5.2.1** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Comprise and argue regularly the opportunities that could arise of the **climatic changes to minimize damages associated to said changes in the frame IT government.**”
- c. **The activity 5** of the section **Orient**, that with the end to satisfy the **activity 4.2** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Communicate to level of company **the utilization of natural resources in the frame IT government** and the measures of results of **the environmental impacts produced by the use of natural resources**, to allow an effective control”.

Process EDM03. Ensure the optimization of the Risk. In this process considered the inclusion of an approach of environmental half sustainability, to the following activities:

- a. **The activity 1** of the section **Evaluate**, that with the end to satisfy the **activity 4.2** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Determine the level of risks related **to the use of natural resources** that the **frame IT government** is had to assume to fulfil with his aims (appetite of risk).”
- b. **The activity 1** of the section **Evaluate**, that with the end to satisfy the **activity 5.1.2** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Determine the level of risks related **to the broadcasts of GEI** that affect to the environment and that **the frame IT government** is had to assume to fulfil with his aims (appetite of risk).”
- c. **The activity 1** of the section **Evaluate**, that with the end to satisfy the **activity 5.2.1** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Determine the level of risks related with **the climatic changes** that **the frame IT government** is had to assume to fulfil with his aims (appetite of risk).
- d. **The activity 1** of the section **Evaluate**, that with the end to satisfy the **activity 6.1** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Determine the level of risks related **to the biodiversity and the services of the ecosystem** that **the frame IT government** is had to assume to fulfil with his aims (appetite of risk).
- e. **The activity 4** of the section **Evaluate**, that with the end to satisfy the **activity 3.1** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Evaluate proactively the factors of environmental **half risk produced by the activities, prior to the strategic** decisions of the **frame IT government**, slope and ensure that they take conscious of the risks”.
- f. **The activity 4** of the section **Evaluate**, that with the end to satisfy the **activity 5.2.1** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Evaluate proactively the factors of **risks made by the climatic changes** prior to the strategic decisions of the **frame IT government** and ensure that the decisions take consents of the risks”.
- g. **The activity 1** of the section **Orient**, that with the end to satisfy the **activity 3.1** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Promote a culture of the environmental half risks and promote to the **frame IT government** to an identification proactiva of **environmental half risk**, opportunities and **impacts of the decisions and activated that they affect to the environment**”.
- h. **The activity 4** of the section **Orient**, that with the end to satisfy the **activity 5.2.1** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Orient the implementation of appropriate mechanisms to answer quickly to the variables risks **related to the climatic changes** and notify immediately to the suitable levels of management, supported principles of scaled agreed (that inform, when, where and as)”.

Besides, it considered the inclusion of the following activities:

- *In the section Evaluate.*
 - a. “3. Identify the sources of pollution and of waste related to the activities of the frame IT government.”
 - b. “5. Measure and Register the sources of pollution and of generation of significant waste inside the frame IT government, in addition to the risks that these made to the human health and the environment.”
 - c. “13. Identify direct and indirect sources of accumulation of broadcasts of GEI inside the frame IT government and define the scope of his responsibility.”

- *In the section Orient.*
 - a. “6. Establish and implement measures to warn the pollution and the generation of waste inside the frame IT government.”
 - b. “7. Establish and implement a program of prevention, preparation and a plan of emergency in front of accidents and environmental incidents so many interns like external to the frame IT government, that involve to the parts interested pertinent.”
 - c. “14. Establish and implement measures to warn and minimize progressively the broadcasts of GEI in the frame IT government, and boost similar actions in his sphere of influence.”
 - d. “20. Establish and Implement practices of planning, design and operation, like forms to warn and minimize the possible impacts that affect to the ecosystem, resultant of the decisions taken inside the frame IT government.”

- *In the section Supervise.*
 - a. “8. Spread publicly the quantities and types of toxic materials that use or free in normal operations and in accidental releases inside the frame IT government, including the risks known that made to the human health and the environment and the measures that pretends assume to mitigate these risks.”
 - b. “17. Inform on his significant broadcasts of GEI inside the frame IT government and the measures to adopt to warn the impact to the environment.”

Process EDM04: Ensure the Optimization of Resources. In this process considered the inclusion of an approach of environmental half sustainability, to the following activities:

- a. **The activity 3** of the section **Orient**, that with the end to satisfy the **activity 4.3** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Define the aims, measures and metric key for the **management of the natural resources in the frame IT government.**”
- b. **The activity 3** of the section **Orient**, that with the end to satisfy the **activity 6.1** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Define the aims, measures and metric key for the **management of the biodiversity and the services of the ecosystem in the frame IT government.**”

- c. **The activity 3** of the section **Orient**, that with the end to satisfy the **activity 6.2** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Define the aims, measures and metric key for the **management of the ecosystem in the frame IT government.**”
- d. **The activity 3** of the section **Orient**, that with the end to satisfy the **activity 7.1** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Consider usual and notable reports of the wallet program, and **exert of the subjects of environmental responsibility.** Review the progress of the **frame IT government** to the aims identified and the degree in which the planned aims are reached, the aims of performance reached and the risk mitigated”.

Besides, it considered the inclusion of the following activities:

- *In the section Evaluate.*
 - a. “19. Use progressively and in greater proportion products of providers that use technologies and processes more sustainable, inside the frame IT government.”
- *In the section Orient.*
 - a. “11. Establish diagrams for the evaluation of the exert environmental, of the products and services that purchase inside the frame IT government, and give preference to the acquisition of products that minimize his impacts.”
 - b. “16. Make savings of energy while it was possible inside the frame IT government, including the purchase and development of goods and products energetically efficient.”

Process EDM05: Ensure the transparency to the parts Interested. In this process considered the inclusion of an approach of environmental half sustainability, to the following activities:

- a. **The activity 1** of the section **Evaluate**, that with the end to satisfy the **activity 2.3** concerning the guide of social responsibility **ISO26000:2010**, it remains of the following way; “Examine and judge the current requirements and applicable **futures to the decisions and activities in the frame IT government** (regulation, legislation. General laws. Contractual requirements). Including scope and frequency.”

Besides, it considered the inclusion of the following activities:

- *In the section Orient.*
 - a. “22. Use a process of rigorous and responsible verification, in which the data and the information come from of a reliable source that allow verifying the accuracy of the same by part of the Interested.”
- *In the section Supervise.*
 - a. “23. Provide a brief explanation of reason do not cover some points, to show that the frame IT government has done effort to cover all the important subjects.”

Process EDM06: environmental Sustainability in the frame IT government. With the purpose to add guidelines of sustainability, considered the creation of the present process, in which they have included the following activities:

- *In the section Evaluate.*
 - a. “9. Identify the natural resources used inside the frame IT government.”
 - b. “10. Identify alternative sources, sustainable, renewable and of low impact to complement or replace the use of resources no renewable inside the frame IT government.”
 - c. “15. Identify the quantity and the type of significant use of fuels inside the frame IT government and implement programs to improve his efficiency.”

- *In the section Orient.*
 - a. “18. Incorporate in the frame IT government, measures of protection of the possible ecosystems affected (natural habitats, rainforests, forests, runners of wild life, areas protected and agricultural terrains), considering besides to the wild animals.”

- *In the section Supervise.*
 - a. “12. Spread publicly the natural resources and his significant use in the frame IT government, as well as his impacts to the environment and measures adopted for his mitigation.”
 - b. “21. Register and inform on the measures taken regarding the analysis made of the ecosystems affected by the frame IT government.”

References

- [1] January 2016. [On line]. Available: <https://actualidad.rt.com/economia/197283-riesgos-economia-mundial-fmi>.
- [2] I. ISACA: Rolling Meadows, «Sustainability – An ISACA White Paper,» 2011.
- [3] G. H. Brundtland, «Report of the World-wide Commission on the Environment and the Sustainable Development,» 1987.
- [4] I. 1. And. w. International organisation of Normalisation and S. G. d. I. C. And. European union, *Evaluation of the approaches to integrate the sustainability to the community politics, Report of final summary*, 2004.
- [5] M. D. And. K. T. J. Stefan Naumann, «The GREENSOFT Model: To reerence model for green and sustainable software,» *Elsevier*, 2011.
- [6] F. Bengtsson And P. J. Ågerfalk, «Information technology ace to change actant in sustainability innovation: Insights from Uppsala,» *Elsevier*, September 2010.

- [7] M. C. Machado, F. To. Sobral And F. H. Junior, «Sustentabilidade na tecnologia gives informacao análise two appearances considered no model of cobit,» *IV SINGEP*, 2014.
- [8] J. W. Merhout And J. Or'Toole, «Sustainable IT Governance (SITG): Is COBIT : An Adequate Model?,» *AIS Electronic Library*, pp. 1-7, Julio 2015.
- [9] M. Bjoern, And. Koray, L. Fabian and Z. Ruediger, «How Sustainable is COBIT 5?,» *Americas Conference on Information Systems*:, vol. 19, pp. 15-17, August 2013.
- [10] To. M. Gil Lafuente and L. Barcellos Paula, «THE CHALLENGES FOR THE BUSINESS SUSTAINABILITY IN THE 21st century,» *Magazine galega of economy: Publication Interdisciplinar gives Facultade of Economic Sciences and Empresariais*, vol. 20, number 2, pp. 115 - 176, 2010.
- [11] D. Fernández of Gatta Sánchez, «The diet of environmental sustainability,» *juridical Magazine of Castile and Leon*, number 25, pp. 163 - 218, 2011.
- [12] F. Arias, «sustainable Development and his indicators,» *Magazine Society and Economia*, number 11, pp. 200-229, 2006.
- [13] C. M. Minaverry And T. To. Gally, «THE VOLUNTARY NORMS To8.000 And ISO 26.000 ON SOCIAL RESPONSIBILITY And HIS IMPORTANCE IN FRONT OF THE WEAKNESS OF THE RIGHT,» *Ars Boni et Aequi*, vol. 9, pp. 257-276, 2013.
- [14] L. Moratis, «Out of the ordinary? Appraising ISO 26000's CSR definition,» vol. 58, number 1, pp. 26 - 47, 2016.
- [15] R. Mattos Of Deus, B. M. Roman Pais Seles and K. R. Ogasawara Scallop, «Ace organizaçõis and to ISO 26000: revisãor two conceitos, two motivators and give barreiras of implementaçãor,» *Gestãor & Produçãor*, vol. 21, number 4, pp. 793-809, 2014.
- [16] I. L. Muñoz Perriñán and G. Ulloa Villegas, «Government of YOU – State of the art,» *Telematic & Systems*, vol. 9, number 17, pp. 23-53, 2011.
- [17] ISACA, COBIT 5: A Frame of Business for the Government and the Management of the YOU of the Company, EE.UU, 2012.
- [18] P. Weill And R. Woodham, «Don't Just Lead, Govern: Implementing Effective I. Governance,» *Social Science Research Network*, vol. 3, number 326, Abril 2002.
- [19] ISACA, «Technical Article of Sustainability,» 2011.
- [20] H. Laksono And And. Supriyadi, «Design and Implementation Information Security Governance Using Analytic Network Process and COBIT 5 For Information Security To Marry Study of Unit XYZ,» *SCOPUS*, number 7437689 p. 6, 2015.
- [21] K. Youssfi, J. Boutahar And S. Elghazi, «IT GOVERNANCE IMPLEMENTATION:To TOOL DESIGN OF COBIT 5 ROADMAP,» *World Congress of Chiropractic Students*, number 7060965, pp. 115 - 121, 2015.

- [22] To. Romadhona And To. Akhmad Arman, «An Analysis of Information Technology Governance Marry study: Statistics Indonesia,» number 7437733, p. 6, 2015.
- [23] ISACA, COBIT 5: processes Catalysts, U.S., 2012.
- [24] ISO, International Norm ISO 26000, Ginebra, 2010.

