

MULTIDIMENSIONAL ANALYSIS FOR ASSESSING THE FEASIBILITY OF IMPLEMENTING AN E-INVOICE SOLUTION IN COSTA RICA

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ABSTRACT

The potential of Information and Communication Technologies (ICT) to support public solutions should be managed considering different perspectives. This paper discusses the situation that Costa Rica have been facing for many years around fiscal issues and high evasion rates. Using actors and multidimensional analysis, it proposes the electronic invoice as an e-Government strategic solution that will close the gap around tax controls and generate an increase in the government incomes. Furthermore, it takes a look at the international success achieved by Brazil in this area and provides alternatives to increase Costa Rica's public policy implementation feasibility.

KEYWORDS

Costa Rica, Brazil, e-invoice, Actors, Multidimensional Analysis, e-Government

1. INTRODUCTION

The multidimensional analysis aims to identify key factors on solving different kind of public issues on societies. This approach is specially useful for characterize challenges, resources, actors, among other variables, needed to design public policies intended to improve or solve specific problems. Specifically for e-government actions, beside just the technological dimension, it is necessary to verify and manage what factors on political, economic, social and administrative dimensions are also required to explain, predict or design a policy in this field. The potential of today's technologies for a large domain of problems can profit from this kind of analysis. An example can be found on fiscal issues of Costa Rica and how the electronic invoice (or e-invoice) could help to fix such problems.

In this domain, one of major Costa Rica public finances problem is related to fiscal deficit. Since there are systematic shortcomings regarding adequate controls for tax collection and tax evasion that exceeds the fiscal deficit, solving such issues is essential to achieve fiscal consolidation. One way to do so is to analyze how may contribute electronic mechanisms such as the electronic invoice as other countries like Brazil or Chile have implemented. Because the solution shall include variables in diverse domains, different factors coming from political, economic, social, administrative and technological dimensions need to be considered, thus, a multidimensional analysis could be useful.

This paper aims to perform such analysis and provide guidelines for a strategy that allows the creation of a new digital tax platform, which includes the promotion of the electronic invoicing in the country, complementing a system of digital tax declaration and registration. The new platform will help to strength Costa Rica's Treasury efficiency enabling to fight tax evasion by improving and simplifying the tax collection processes, while new options to interact using digital means are provided to the productive sector. In section 2 we review Costa Rica's previous and current efforts related to the electronic invoice implementation. Section 3 presents theoretical concepts relevant to e-government and its relation to fiscal issues. Next, section 4 details the analysis framework integrating a review of documental sources available both for Costa Rica's situation and one international success case as benchmark. Section 5 applies a stakeholder analysis, which will determine the proposal's feasibility. Finally, section 6 presents a comparison between the current situation in the country in contrast to the ideal situation that would allow a successful implementation of the electronic invoice. Some conclusions and recommendations are pointed at the end of the paper.

2. COSTA RICA'S FISCAL ISSUES

A current priority of Costa Rica's government has been to find ways on handling public economic issues. Fiscal deficit is widely recognized as one of the main problems on public finances. Solutions include the proposal for a fiscal reform creating new taxes to help on fixing the situation. However, the creation of new taxes is a measure that does not have the support from diverse actors, especially political opposition or enterprises. One of the main arguments against the fiscal reform plan, is the fact that there is a very high tax evasion, which, according to information published in media (ACAN-EFE, 2016), exceeds by 8% the country's Gross Domestic Product (GDP), while the general government deficit, according to the same source is near 5% of the GDP.

Thus by a simple arithmetic calculation, a correct tax collection will dismiss the need for new taxes. Controlling the evasion will generate fiscal surplus for government. As detailed at the Presidency of Costa Rica official website (Costa Rica Gobierno de la República, 2016), the Treasury Secretary has conducted studies that demonstrate the high degree of evasion. For example, tax authorities reported that with the implementation of evasion control plan executed in 2015 over 731 free lancers professionals' unpaid taxes represent more than USD\$2.1 million, which could go up to USD\$3 million after interests and fees. Simple and clearly an immediate question arises: how can Costa Rica develop mechanisms for avoiding tax evasion in order to balance fiscal deficit?

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International success experiences may provide guidelines for such objective. The Brazil’s electronic invoicing implementation is considered one of the leaders in this kind of systems (Da Silva et al., 2016). The Argentine EDICOM site (EDICOM, 2015), indicates that the penetration of the electronic invoice in Brazil for the areas of Business to Business (B2B) and Business to Government (B2G) has already exceeded 90%, which consolidates the country, along with Mexico, as world leaders using this technology.

3. THEORETICAL APPROACH

As described in (Cortés-Morales & Marín-Raventós, 2012), e-Government solutions can be categorized as a multidimensional problem where actors’ performance is a key success factor for the success of a public policy using e-government solutions, as it was reported for several electronic public services in Chile and Costa Rica (Cortés-Morales, 2015).

The approach of multidimensional analysis is simple but it can bring powerful assessment both for scientific or applied research regarding public affairs. Synthetically Table 1 presents guide or research questions in different dimensions that can be used for identifying source data as well to identify some characteristics of actors (later we are describing briefly actors’ characterization).

Table 1. Example of questions for mapping Multidimensional Analysis to Actor’s Model (Cortés-Morales & Marín-Raventós, 2012)

Dimension	Example of questions or guides for source data	Related concepts
Political	What policies have being defined on digital government?	Actors, veto power (institutional and economic resources)
	What institutions are related with digital government? (laws, decrees, contracts)	Public and beneficiary actors, veto power (institutional resource)
	What actors are involved?	Actors
	What actors are not involved and could be important?	Actors
	What public positions have been made by political actors?	Actor’s support (declaration variable)
	What evaluations are being made on digital government policies?	Actors, veto power (institutional, economical and recognition resources)
Economical	What resources have been assigned to e-government?	Veto power (economical resource), Actor’s support(actions)
	What economic policy instruments were implemented for e-government funding?	Veto power (economical resource), actor’s support (actions)
	Cost-benefit studies made	Veto power (economical resource)
	List of economic transformations on product or process using intensively information	Actors (beneficiaries)

Dimension	Example of questions or guides for source data	Related concepts
Administrative	Savings on using e-government	Support (actions)
	Training on public servers either in new technologies or new digital services	Actors (objective) Support(actions)
	Shared information between public organizations for digital services	Support(actions)
	Implemented services	Actors (beneficiaries, objective) Support(actions)
	Private participation on services implementation	Actors (beneficiaries) Support(actions) Veto power (institutional and economical resources)
Social	Policy effects on improving digital skills on citizens	Actors (beneficiaries)
	Services usability evaluation	Actors (objective)
	Effects on education, health, social services processes or products	Actors (beneficiaries)
Technological	Improvement on public digital infrastructure	Support (actions)
	Policies on standards, security and other technological issues	Support (actions)

The challenge for researchers is to find evidences on different dimensions (political, economic, social, administrative and technological), and mapping such findings to specific actors for computing the feasibility of the implemented and/or proposed solution.

Actors, on the other hand, are individuals and groups defending a unique position regarding a public problem (Subirats et al., 2008). Such actors could be categorized as “public” (who are in charge of policies) and “private” and among those, beneficiaries (who benefit of policies) and objective (who are affected).

Actors have resources and they can be used for support or not a policy (Cortés-Morales, 2015). Resources can be computed for each actor and have a determined weight for specific political context. For example, an institutional resource (law, decrees and other formal rules) can be more important in a stable political context than less stable scenarios where leaders with no formal resources (like charismatic union or religious leaders) can influence policies. Veto power is a weighted average that compute a value between 0 and 1 (the higher value the more power for an actor), assessing each resource on specific political contexts. Table 1 shows some examples on how multidimensional analysis may bring some data source to identify such resources.

Support is a second characteristic where actors perform actions and state declarations for a specific policy. Support also can be computed and its value varies from 0 to 1, where a higher value means a higher support. Table 1 also shows some source information and how the findings can be mapped to this characteristic of an actor. The combination of those actors’ characteristics can be used to define a typology like Figure 1.

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		Veto power	
		Low	High
Support	High	UPHOLDER	SPONSOR
	Low	INDIFFERENT	BLOCKER

Figure 1. Typology of actors from their characteristics of Veto Power and Support (Cortés-Morales & Marín-Raventós, 2012)

Finally, Veto Power and Support of each actor can be aggregate for compute a “Feasibility” value that can determine how feasible was (or can be) a policy. It is supposed the more powerful actors support a policy, the more feasible it would be.

Graphically Figure 2 synthetizes the actor’s model combining the “Veto Power”, the “Support” and the “Feasibility” as a result.

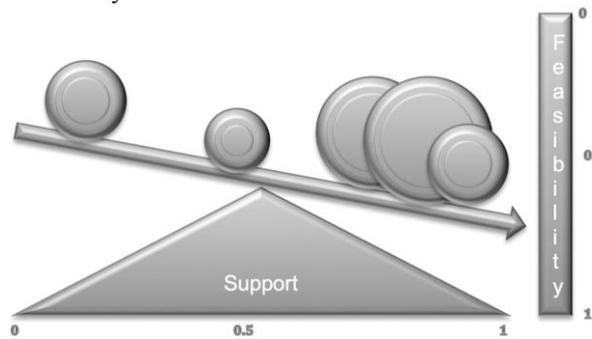


Figure 2. Synthetic view of Actors' Model (Cortés-Morales, Unpublished)

From the perspective of e-Government concept, the Electronic Tax Platform Solution can be categorized into Digital Government typologies (Fountain, 2001), primarily as a Government to Business (G2B) solution, since it focuses on providing a platform on which all production companies can interact with the government to present its accounting and tax information. Also it encourages the creation of solutions Business to Business (B2B) since companies should exchange digital invoices to conduct their business interactions. On the other hand, there is a component that could be considered Government to Government (G2G) as different government entities within the Treasury House should interact: the Taxes Department and the National Customs Service.

4. METHODOLOGICAL APPROACH

Description of the current fiscal situation in the Costa Rica shows that efforts taken have not delivered the expected results, so a public policy approach emphasizing the formulation stage is proposed (Cortés-Morales, Unpublished) (Subirats et al., 2008).

In addition, the Case Study Research Strategy (Yin, 1994) for Costa Rica and using Brazil as reference was adopted to set information source elements for Costa Rica current situation and a projected solution on its specific context based on Brazilian good practices.

Stating specific questions for public policy formulation stage and using multidimensional analysis will permit to gather the elements for the solution, providing guidelines for next stages of the policy (decision, implementation and evaluation). Based on documental sources we proceed to perform the multidimensional analysis that includes political, economic, social, administrative, and technological variables needed for the policy formulation.

Mapping the findings to specific actors permit to compute values on characteristics of “veto power” and “support” following specific heuristics. Institutional resource, for instance, is important as long it’s not currently good enough for the solution. The more scarce a resource is, the more its value is near to 1 (or near to 0 on the contrary). For a specific actor, if institutional resource would permit that she or he acts adequately in the solution, such actor would have a value near to 1 on that specific resource. Similar rational is applied to other resources of veto power and actors’ support actions or public declarations.

5. COSTA RICA CASE

5.1 Political Dimension

Regarding the institutional frame, Costa Rica has two main laws on tax regulation and an executive resolution describing the application of tax burdens, their definitions and processes of the government to collect and ensure their payment (Ministerio de Hacienda de Costa Rica, 2016). The mandatory use of electronic invoice has been already a topic on the agenda of the Treasury House. As evidenced in (Cordero Pérez, 2015), efforts are underway on issuing a resolution for progressively establish a mandatory requirement. Grounded on the resolutions published in (La Gaceta, 2009) and its subsequent updates in September and August 2011, in which the guidelines for voluntary use of digital media were defined, with the law’s support, entitling the government to issue such resolutions. There are also international agreements that Costa Rica has signed, such as the application to be a member of the Organization for Economic Co-Operation and Development (OECD). Specifically, OECD seeks every member to develop mechanisms for fiscal transparency as well as the creation of public policies to avoid tax paradises. Particularly for the OECD, although Costa Rica has not completed its final inclusion, the incorporation process requires the implementation of political, practical and legal instruments in different areas, including the tax area. Even there is already an institutional structure that would support such solution, one crucial factor is to define who would be the bill authorizer entity, an element that has been reason for debate in recent years. In particular, the Central Bank of Costa Rica (BCCR) is emerging as a strategic partner to take on this role, as long as it complies with the guidelines and regulations that the Treasury House defines. BCCR will take an operative role while the Taxes Department will be the responsible for the Electronic Tax Platform. Considering the decision phase, given the authority granted by the existing tax legislation, the Taxes Department can define the mechanisms for an efficient tax collection. Additionally, laws already provide the possibility of applying technological mechanisms as part of tax processes, which enables the Treasury House to issue rules and regulations that promote the new digital platform.

5.2 Economical Dimension

As described, in several existing laws a percentage of tax revenues is intended to help on founding the taxation process management. Therefore, to maintain this model, the solution will be self-sustained through tax collection. As stated by (Cordero Pérez, 2015), the authorities recognize that electronic invoice will generate an increase of about 10% in the government income. The cost of using electronic invoicing is 28 times less than conventional printed invoice, without considering costs generated by processing errors, loss or storage. As explained by (Ramírez, 2016) electronic invoicing is highly profitable for businesses. It has major effects in reducing printing costs, documents distribution, and fuel consumption required for archiving and retrieving a particular document, as well as invoice processing. On the other hand, the initial investment, which represents a high cost, could be covered by alternative means, for example, inviting state banks to develop and manage the solution as an authorized collection agency; similar to other successful models already established, leveraging the existing situation with entities such as the Banco de Costa Rica (BCR), who has implemented solutions for issuing passports and licenses (Cortés-Morales & Marín-Raventós, 2013).

5.3 Social Dimension

Given the corruption scandals and media news about major companies that evade taxes in the country, the Electronic Tax Platform may be considered as an option to provide a greater ability to control tax transactions. At the same time, it could raise the citizens' level of confidence, not only in the government's ability to make an efficient tax collection, but also bringing transparency in their actions. Since corruption is one of most sensible issues on Costa Rica's population (CIEP, 2013), a solution that could fix such problem may be valued in a good way by citizens. This is accompanied with improved efficiency on government among other benefits as in the environmental field by eliminating the use of paper and ink which can be leveraged to achieve established country goals like reducing the carbon footprint.

5.4 Administrative Dimension

The Tax Department General Manager stated in an interview (Alvarado, 2016) that they have plans for a new platform for handling electronic invoicing and they were finalizing details on selecting a technology partner for the solution. Even there was a previous agreement with the BCCR as technological partner, it was suspended. It would be valuable to reconsider the BCCR as the certifying entity since they already have the experience of implementing SINPE (National Electronic Payment System). Such experience can serve as a basis for incorporating electronic invoices certification and provide the necessary guidance to the selected technological partners. In addition, a project team must be established, that should be formed by personnel from the Treasury House, who define the requirements ensuring that tax legislation is applied correctly; the BCCR Board, who would be in charge of the design, implementation and testing of the solution; and an Advisory Committee which shall include people that was involved on implementing solutions in countries like Brazil, Chile, Mexico and Spain, who can, from their experience, provide its expert advice on best practices and strategies to ensure success. The General Comptroller must be responsible for ensuring an adequate project execution. Treasury House employees, specifically the Tax Department, should be trained so that they understand the new platform and its use for the benefit of their own work and the taxpayer.

5.5 Technological Dimension

Lessons learned from successful implementations in other countries like Mexico, Chile, Spain and Brazil should be a source of good practices. Broadly it can be noticed the use of systems based on SOA, through XML web standards. Such technological approach avoids obsolescence of platforms as they become no longer compatible with new operating systems versions, as happened with previous government solutions (Eddi-7 and Declar@7) which Treasury House provided some years ago. In addition, the data integration with a centralized system allows the automation of the delivery process, consultation and validation of forms and invoices, as well as data mining for intelligence for the control of tax collection.

6. BRAZIL'S ELECTRONIC INVOICE CASE REFERENCE

The Brazilian Government identified serious flaws in its administrative capacity to ensure a proper tax management and the need to solve three basic problems: a) Integration and mechanisms for sharing information between its states (Brazil is a Federation of States), b) Modernize the tax management to reduce the level of bureaucracy, and c) Restructure and automate tax management mechanisms to deal with high volumes of transactions and reduce costs. The Brazilian Government was clear that its problem was a disparate system of tax collection from their federal states, which caused a higher investment in the administrative field to control taxes, at the time that relations between government and companies were affected by the fact they seek loopholes to evade taxes under the pretext of the extreme complexity. As detailed in (Henrique Diniz et al., 2007), the first formal studies for the implementation of a digital public policy were drawn up by the "Grupo de Trabalho em Tecnologia da Informação (GTTI)", which was a commission created by presidential decree on April 3, 2000, whose aim was to review and propose public policies guidelines and standards to govern the new forms of digital interaction. The result of the commission was the Electronic Government Program of Brazil in 2001.

As described in (Anon., 2016), by December 2003 the constitutional amendment number 42 introduced the paragraph XXII in the Article 37 of the federal constitution. The amendment determines that all tax administrations of the states and federal districts of Brazil must work in an integrated manner ensuring that records and tax information are shared among them. To meet the mandates of the amendment, from July 2004 national meetings of tax administrators (who manage the establishment of technical cooperation protocols) are made. In March 2005 a group of representatives of the NF-e Project ("Nota Fiscal Eletrônica", electronic fiscal invoice) from the Treasury Departments of São Paulo and Rio Grande do Sul traveled to Chile to learn from their experience, considering that they had successfully implemented an electronic billing system by 2003 (Oller de Mello et al., 2009). The study in Chile, concludes that there is a technical feasibility for Brazil invoice system. The main challenge would not be technological, but how to overcome the obstacles to the creation of a single invoice national standard that would be accepted by all state agencies and the federal tax authority. Subsequently, as described in (Anon., 2016), by August 2005 was approved the development and implementation of the "Sistema Público de Escrituração Digital (SPED)" and the e-invoicing project "Nota Fiscal Eletrônica (NF-e)" inside the program "Projeto de Modernização da Administração Tributária e Aduaneira (PMATA)". (Roseno, 2012) explains that the SPED will become the national framework for the unified data processing which will operate based on digital certificates giving legal validity to the Accounting and Tax in digital format. In September 2005, national legislation for electronic invoicing (NF-e) was approved,

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starting the implementation of a pilot project where 6 states, the federal government, and 19 voluntary private companies had participated. In addition, (Roseno, 2012) describes that the SPED was formally established by the decree number 6,022 on January 22, 2007 as part of the "Aceleração do Crescimento do Governo Federal (PAC 2007-2010)" program, incorporating 3 projects: a) Electronic Fiscal Invoice (NF-e), b) Digital Accounting Record (ECD), and c) Digital Fiscal Record (EFD). (Oller de Mello et al., 2009) comment that by September 15, 2006, as a result of the pilot, they began to use legally valid electronic invoice. In April 2008 they began with the expansion stage for the mandatory use of the NF-e. Subsequently, as indicated by (Oller de Mello et al., 2009), thanks to the success achieved by the NF-e, in October 2006 a new public policy for electronic tax oriented to the transport sector, known as "Conhecimento Transport Eletrônico (CT-e)", has started. The new legislation was approved in a record time in October 2007, and a pilot project with 2 voluntary states and 43 private companies has been launched. Thanks to the replication of standards and best practices proposed for the NF-e, by March 2009 the first transport companies start issuing legally valid CT-e, and by 2010 is extended to the whole country. As evidenced in (Mello, 2014), the successful implementation of the electronic invoices (NF-e) put Brazil's system as one of the most advanced systems of tax statements.

7. MODEL APPLICATION

Based on the gathered information and the analysis of the situation in Costa Rica, and referencing it to the case of Brazil, we proceed to create a model of actors where the feasibility of the solution in the current state is calculated, and scenarios will be proposed to increase it. Following the typology described by (Subirats et al., 2008) which ranks stakeholders in Public, Private, Objective and Beneficiaries, and the assessment of actors' model described in (Cortés-Morales, 2015) we proceed to an analysis of the main actors present in the Costa Rican national context (Table 2).

Table 2. Identified Actors

Type	Entity	Identified Stakeholders
Public	Costa Rica's Presidency	Luis Guillermo Solís Rivera
	Treasury House	Helio Fallas Venegas
	Central Bank of Costa Rica	BCCR Board
Objective	Taxpayers in Favor	It is expected to be mostly large taxpayers who saw this initiative as an opportunity to decrease operating costs
	Taxpayers Against	The big evaders and freelance workers, who with the control increases will be forced to report all transactions and thus see an increase in their payable taxes
Beneficiarie	Treasury House Employees	Set of officials who benefit by having better tools for tax control
	Business Consultants and Developers	Group comprised of consulting firms, developers and implementers of electronic invoice that would potentially increase their income by an expansion of the market segment
	Citizens	There will be greater transparency and better tax collection, which will benefit the government's finances and allowing it to implement public policies for citizenship

We proceed to perform a multidimensional analysis to determine the power of veto, which is the resources that an actor has at a given time and their relative importance; and the level of support, which measures the level of support based on the resources that an actor brings in favor or against public policy. In order to calculate the power of veto, resources are categorized into four types: a) Institutional, b) Economic, c) Public Recognition, and d) Media. Each of these categories are assigned a weight according to the level of importance for the solution formulation as is described in (Cortés-Morales, Unpublished). Here we can recall as we stated in Section 3, that a resource is more important as long is more scarce. Table 3 shows the values assigned to these resources. Since institutional arrangements are necessary to implement the e-invoice, it appears as one of the most important resources. For example, the mandatory use of such technology by enterprises implies new decrees or regulations. This, Institutional Resource becomes more important. On the contrary, Media Resource is less important since the capacity of Government to access media is high.

Similarly, the level of support, which is categorized into two types: a) Positioning and b) Actions, as is shown in Table 4. As fiscal situation has been already discussed, public statements have become less important than actions to solve the problem. Thus, actions represent a more valuable support in the current situation of Costa Rica.

Table 3. Veto Power Factors Weight

Parameter	Value
Institutional	45%
Economic	35%
Public Recognition	15%
Media	5%

Table 4. Support Level Factors Weight

Parameter	Value
Positioning	30%
Actions	70%

Once the weights of the veto power and level of support factors are identified, each actor is evaluated to determine the individual impact for the proposed solution. Table 4 and 5 are the result of the veto power and the level of support, both for Mr. Solís, President of Costa Rica, and Mr. Fallas, Minister of the Treasury House; two of the key actors involved.

Table 5. Current Luis Guillermo Solís Rivera Impact

Type	Parameter	Value
Veto Power	Institutional	0.75
	Economic	0.75
	Public Recognition	0.60
	Media	1.00
	<i>Total</i>	<i>0.740</i>
Level of Support	Positioning	0.50
	Actions	0.25
	<i>Total</i>	<i>0.325</i>

Table 6. Current Helio Fallas Venegas Impact

Type	Parameter	Value
Veto Power	Institutional	1.00
	Economic	0.50
	Public Recognition	0.70
	Media	0.50
	<i>Total</i>	<i>0.755</i>
Level of Support	Positioning	0.75
	Actions	0.75
	<i>Total</i>	<i>0.750</i>

The calculation of the veto power for each actor was obtained using (1) (Cortés-Morales & Marín-Raventós, 2012),

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$$(1) \quad V(\mathbf{t}) = \frac{\sum_{i=1}^N r(\mathbf{t})_i w(\mathbf{t})_i}{\sum_{i=1}^N w(\mathbf{t})_i}$$

Here it considers the weight of each parameter and the ability of each stakeholder on it. The level of support was calculated using the same logic, but based on the position and actions taken. To set the feasibility of the solution we used formula described in (2) (Cortés-Morales & Marín-Raventós, 2012),

$$(2) \quad F(\mathbf{t}) = \frac{\sum_{i=1}^N S(\mathbf{t})_i V(\mathbf{t})_i^{\alpha(\mathbf{t})}}{\sum_{i=1}^N V(\mathbf{t})_i}$$

The veto power of each actor are contemplated, as well as the level of support they have provided for the promotion of electronic invoicing in Costa Rica, then resulting with a value of feasibility 0.5163 for the solution.

The result shows that the feasibility of the solution is average, representing the national situation. Although it is true that the subject has been part of the agenda of the Treasury House and there have been some efforts to establish electronic invoicing, they have not been successful. One of the main reasons for these failures is the lack of political commitment to promote and construct the solution. Having analyzed the set of actors identified in the current Costa Rican context, a projection is created about what would be the ideal environment for the establishment and implementation of the project to equip the Tax Department of a mechanism to improve tax collection in the country. To do that, the relevant actors where re-assessed, assuming they have the level of resources required to promote the implementation. Table 7 and

Minister Mr. Helio Fallas was re-assessed showing the following values:

Table 8 shows the result obtained with certain key capabilities enhanced for the President and the Minister (using Brazil's reference in the resources needed for a feasible solution).

Table 7. Projected Luis Guillermo Solís Rivera

Type	Parameter	Value
Veto Power	Institutional	0.75
	Economic	0.75
	Public Recognition	0.75
	Media	1.00
	<i>Total</i>	<i>0.762</i>
Level of Support	Positioning	1.00
	Actions	1.00
	<i>Total</i>	<i>1.000</i>

Minister Mr. Helio Fallas was re-assessed showing the following values:

Table 8. Projected Helio Fallas Venegas Impact

Type	Parameter	Value
Veto Power	Institutional	1.00
	Economic	1.00
	Public Recognition	0.70
	Media	1.00
	<i>Total</i>	<i>0.955</i>
Level of Support	Positioning	1.00
	Actions	1.00
	<i>Total</i>	<i>1.000</i>

Finally, Figure 3 shows the comparison for all involved stakeholders before and after the modification.

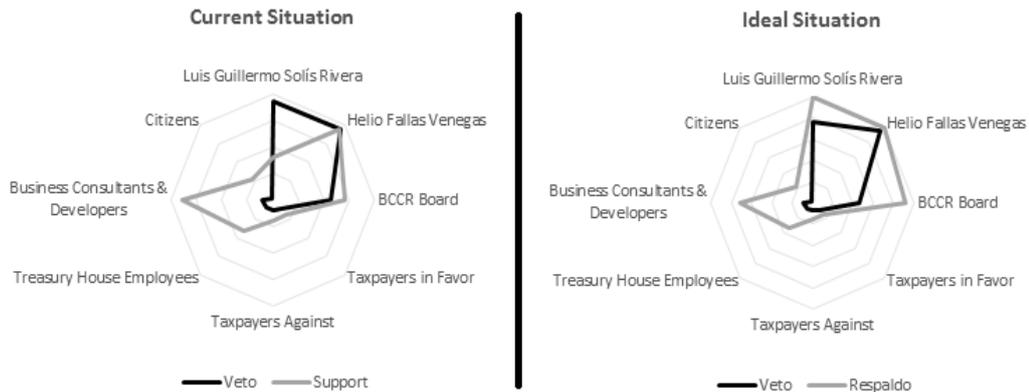


Figure 3. Current Situation vs. Ideal Situation

The President of Costa Rica, Mr. Luis Guillermo Solis Rivera, should ideally give full support to the initiative, reflected in the increase of the Positioning and Actions factors. In addition, is needed an increase in its public recognition, since its current valuation as public figure is not ideal, so he can count on greater support to positively promote the solution in the public debate (for example, to fight corruption or to have funding for social programs). The Minister of the Treasure House, Mr. Helio Fallas, must strengthen his support to the electronic invoicing, making it a priority for his administration and securing the financial resources required for the implementation. It is important to note that he is the person called to take the leading role as a sponsor of the project, and should remove barriers. After the adjustments, the feasibility formula (2) is applied again, where are contemplated: a) the veto powers of each actor, and b) the level of support they could provide; obtaining a higher feasibility of 0.8964 for the solution.

8. CONCLUSION

As a result of this research, we can describe the following set of recommendations to achieve the implementation of the electronic invoice in Costa Rica. First is to follow good practices for the analysis and adaptation of successful models in similar areas.

A clear example is the case of the implementation of the electronic invoicing in Brazil, who sought to replicate the success of Chile, learning from its model, execution processes, and seeking opportunities for improvement and adjustment to the Brazilian reality. That is why Costa Rica should observe Brazil, Chile and other countries as best practices references, in order to seek the adoption of a proved solution, instead of investing resources in exploring uncertain solutions. Hence, Costa Rica should encourage the creation of international partnerships to achieve the interaction between Costa Rica's project team and representatives of studies cases that can provide advice on different dimensions. To launch the initiative it is not required the involvement of the Government's Legislative Branch in creating a legal framework to support it, since there is already the necessary institutional framework that gives the authority to the Treasury House, specifically the Tax Department.

Therefore, Costa Rica must work on the creation of a centralized government system, to subsequently determine their progressive mandatory adoption among different commercial entities operating in the country; providing the necessary mechanisms for widespread and unrestricted access. From the analysis of actors, it is appreciated that there are no limitations for the implementation of the solution. However, one of the main factors that have avoided its implementation is the lack of political commitment. Consequently the support from actors is a key factor of success.

On the other hand, there is widespread concern in the population with respect to the corruption problems through tax evasion. Hence the Minister of the Treasury House, with the support of the President, should take advantage of recent scandals, and the need for a change in the fiscal situation of the country, to strongly promote the initiative. Here is evident the importance of creating a plan for the short, medium and long term, that includes the study and adaptation of successful models, the technical implementation, the necessary contingencies to ensure taxpayers widespread access, as well as the development of a progressive mandatory adoption, consistent with government and industry capabilities, to ensure acceptance of the electronic invoice.

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