

# Assessing the Role of Executive Involvement and Information Needs as Socio-Technical Determinants of Governance in IIS Success

Felipe Cronemberger  
College of Engineering and  
Applied Sciences  
University at Albany, SUNY  
fcronemberger@albany.edu

Djoko Sigit Sayogo  
Universitas Muhammadiyah  
Malang, Indonesia  
dsayogo@ctg.albany.edu

J. Ramon Gil-Garcia  
University at Albany, State  
University of New York, USA  
jgil-garcia@ctg.albany.edu

## Abstract

*This paper systematically assesses two determinants of governance in IIS initiatives: information needs and executive involvement. As literature suggests and our hypotheses imply, those determinants are perceived to hold close relationships to the success of information sharing and collaboration initiatives through the mediation of governance mechanisms. By taking a quantitative stand to a US-based national survey data, we use structural equation modelling (SEM) techniques to verify to what extent those determinants are significantly associated with governance. We also propose a framework to explain the relative relevance of these two variables in determining the success of IIS (Information Integration and Sharing) project using governance as a mediator. Overall, this study puts the concept of governance in perspective, opening paths to expand theoretical and conceptual boundaries associated to the role it plays on the success of IIS in the public sector.*

**Keywords:** Information Sharing, Governance, Socio-Technical Systems

## 1. Introduction

The complexity inherent to social problems requires a thorough understanding of all the variables involved and their relationships. While attempting to leverage technology to address those problems more efficiently and effectively, organizations internally are confronted with even more intricate difficulties that may compromise the success of their operational routine and, sometimes, their very mission as an institution. In face of often disappointing results with IT investments [1], [2], the pursuit of a better understanding about those setbacks has been attracting increasing attention to the complexity produced by people and technology when organizations engage in transformational Information and Communication Technologies (ICT) projects [3], [4].

Necessarily, such understanding passes through what is commonly known as governance and, more

specifically, the so-desired “good governance” [5], [6]. In this paper, we consider governance as the articulation of policies and standards that determines working collaboration among members of an information sharing initiative [7]. Literature has been consistent about the fact that governance, collaboration, and information sharing initiatives at the inter-organizational level increase performance in organizations and, consequently, improve the quality of their outputs [1], [8]–[11]. Henceforth, deconstructing what determines governance is key to learn what organizational practices and policies should be encouraged.

Recently, information sharing and collaboration have been vastly discussed in the light of their influence on organizations’ success and performance. Many studies have set out to investigate what elements influence the success of information sharing initiatives. Among others, constructs such as boundary object use [12], collaboration and communication skills [13]–[15] and clarity of roles and responsibilities [16] have been receiving attention. More recently, however, research endeavors have taken a closer look at governance structures and its determinants [8], [17]. Such endeavors have furthered the deconstruction of those determinants and have provided important insights from a policy-making and governance perspective. Gil-Garcia and Sayogo [18], for instance, have found evidence that the formalization of project manager roles and technicalities regarding infrastructure predict success in information sharing initiatives, hence, facilitating inter-organizational collaboration and performance. More specifically, Sayogo and Gil-Garcia [6] have also found that variables like information needs and executive involvement hold significant ties with the success of information sharing and collaboration initiatives. However, they did not evaluate the indirect influence of information needs and executive involvement on the success of IIS (Information Integration and Sharing) project through governance as a mediator.

The fact that previous findings point to the existence of social and technical aspects of information sharing success motivates the

investigation of hypotheses from a socio-technical perspective [19], [20]. This study is guided by the following questions: what aspects carry more weight in predicting governance and the consequent information sharing success? Social ones, like the choice of a project managers and their subsequent involvement as leaders; or technical ones, such as information technology infrastructures and information gaps that need to be filled? While literature has been avidly debating the relevance of both and implying that they are both pertinent, little research has indeed looked at it comparatively and with quantitative rigor. This study will take an initial, yet important step in assessing their relevance and emerging theoretical connections with what is expected about governance. First, we present a body of literature that situates the discussion about information needs and the exercise of authority along with related theoretical frameworks. Then, we apply SEM (Structural Equation Modeling) to quantitatively verify to what extent findings from our analysis correspond to the hypotheses derived from previous studies.

## 2. Literature Review

### 2.1. Governance at glance

Governance has been broadly studied, both conceptually and from the perspective of value creation to organizations [9]–[11]. Many definitions are generic and normally conceptually convergent. Hambrick, Werder, and Zajac [21], for instance, suggest governance refers to “structures and processes by which an organization’s assets and activities are overseen...”. Specifically when we analyze the transformative nature of ICT initiatives in organizational environments, the notion of governance does not diverge too much, being even considered “a matter of nomenclature” [22]. Since Garrity’s first attempt to frame the reality of ICT investments [23], a myriad of authors have discussed the theme from multiple perspectives. Analyses range from the importance of strategic alignment to organizational performance [24], all the way to more of a technology diffusion perspective, in the context of the relative effect of outsourcing initiatives [25].

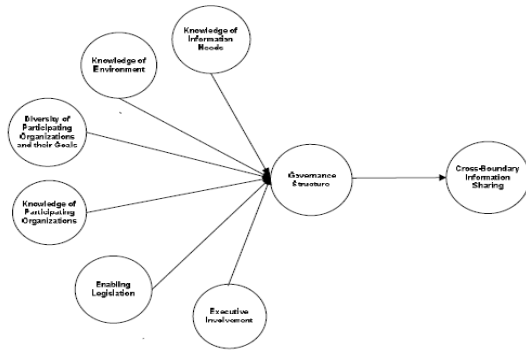
In an emblematic review of the literature, Brown and Grant [20] have highlighted Sambamurthy and Zmud’s contribution [26] to a significant methodological shift in the study of governance. Clearly, the research agenda has moved from the intangible study of managerial practices, diluted in corporate operations, to the idea of “IT-decision rights and accountabilities” [22], [27], concepts that

increasingly fostered the development of IT/IS governance frameworks [26]. For the purposes of this paper, we align with Lynn et al. (2001), where governance would encompass “regimes of laws, rules, judicial decisions, and administrative practices that constrain, prescribe, and enable the provision of publicly supported goods and services” [7]. Based on the conceptualizations presented in previous research, we propose governance consists of the articulation of policies and processes into a coordinated effort that generates value to the organization and the stakeholders the organization is committed with. Not surprisingly, such conceptual discussion suggests that good governance is indeed critical for the success of any strategic initiative and can be linked to organizational performance and success.

Challenges, nonetheless, often arise from the decision-making complexities many organizations experience [28]. ICTs are perceived to modify the environment where they are used or enacted [25] and have an impact on the nature of the relationship stakeholders have with those technologies and organizational goals [3]. In order to accomplish those goals, organizations have to overcome institutional inertia [30] and successfully learn to collaborate [31]. As implied by Dawes et al. [30], no organization can afford to be optimistic about its success without making stakeholders cognizant of the strategic relevance of “partnering work” and “knowledge-sharing”, an endeavor that requires organizations that leverage from ICTs to embrace normative efforts such as steering committees and communication policies [33]. Already established as a predictor of effective governance, developing information sharing capabilities and infrastructure represents an investment in efficiency and performance in an organization.

Only more recently, however, the idea of performance has been assessed in more details and deconstructed into other determinants. Pardo et al. [8], for instance, have analyzed organizational performance as a result of governance structures and mechanisms in cross-boundary information sharing initiatives. Their proposed framework implies successful information sharing is mediated by a governance structure that is affected by six determinants (see Figure 1).

The relationship between information sharing and performance can be inferred from the increasing importance of collaboration and success [17], [34], [35]. Creating a governance structure that supports collaboration and makes the environment more conducive to information sharing initiatives is key. Nurturing good governance [5], nonetheless, involves clearer understanding of the nature of its predictors, an endeavor we explore quantitatively in this paper.



**Figure 1. Determinants of Governance Structures in Cross-Boundary Information Sharing Initiatives (Pardo et al. 2008)**

Next, we analyze the role of information needs and executive support in determining good practices in government.

## 2.2. Information Needs and Governance

While awareness for addressing issues related to information needs is far from being new, connections with governance and organizational success are relatively incipient. The need for information has become essentially natural to our routine, but as access to information becomes overwhelmingly present, it is becoming increasingly hard to figure out what is really needed in terms of information [36], [37]. Telling information apart – or framing it [38] - based on its relevance determines the efficiency we set forth to accomplish when making our most basic decisions as individuals, as well as the decisions leaders and policy-makers make on behalf of their organizations.

Research has predominantly investigated information needs from a user perspective [39]–[42], being focused more distinctly in the experience of individuals and their immediate decision-making needs [43], [44]. In the late 1970’s, Rockart has objectively analyzed methods to provide data to executives and shed light on how indicators and systems can support management at the top of the organization and facilitate the “attainment of organizational goals”, an approach commonly referred to as critical success factors or CSF [45], [46].

Research has also suggested that “lack of knowledge about an appropriate source” can compromise overall efficiency [47] and that information needs ought to be addressed strategically through “corporate information management systems” if an organization desires to remain competitive [46]. Arguably, managing information appropriately is paramount to account both for critical information an organization may require and for the many constrains

information encounters when stakeholders need to use it strategically. Problems associated with those barriers involve the potential creation of “information silos” [6], [48], a problem that, similarly, has been broadly discussed in knowledge management literature [49], [50], and still represents a challenge to organizations.

Based on case studies from state agencies in North Carolina and Colorado, Pardo et al. [8] proposed a model that empirically demonstrated the impact knowledge of information needs has on governance structures in IIS. The model suggests that such knowledge leads to “good understanding of the environment” that facilitates decision-making by helping identifying on-going issues and opportunities for action [8]. In this paper, we consider such model to expose governance’s pervasive nature and uncover not so intuitive linkages between its determinants and its potential success. We opt to do so because, as suggested by literature, the relationship between the need for information and governance is substantial and requires the discussion to be taken to a more strategic level, where the enactment of information sharing capabilities [29], [50] is the result of how effectively policies, individuals, and technologies articulate to address information needs and maximize outputs.

## 2.3. Executive Involvement and Governance

Organizations that want to obtain results from ICTs cannot overlook the role their leaders play as catalyzers of this transformational projects. A number of researchers have shed light to how game-changing direct executive’s involvement and support is to the success of business strategies [51]–[54]. Others have particularly focused on strengthening the relationship between leadership and governance by discussing it as a component of the organizational strategy [55], [56]. Both approaches seem to emphasize that physical presence and a meaningful participation seem to correlate with better outputs.

There is also evidence that executive involvement and support is especially important to successful governance. According to Jarveenpa and Ives, executive’s involvement has directly resulted on a “firm’s progressive use of information technology” [58]. In addition, De Haes and Van Grembergen have highlighted that senior management is a priority for CIOs and that organizational structures and governance can actually be “designed” [58]. Building those structures, nevertheless, is a challenge that requires leaders to face systemic constraints that are socio-technical in nature. Success in this endeavor is contingent to the qualities these leaders bring forth and

how much of those qualities can in fact encourage collaboration. Expanding on Mintzberg's contributions to the relationship between leader's focus and organizational performance, Englene et al. [57] have brought attention the how one leader's "attention to people" can reinforce a network and facilitate the establishment of linkages. It is rather intuitive that those linkages can also facilitate information sharing and enhance executive involvement and outreach.

Pardo et al. [8] have also investigated the role of executive involvement at determining governance, shedding light, in particular to the amount of variation associated to such role and its mutable nature. Authors found that, in a number of circumstances and contingencies, executive's involvement is perceived to be consequential to existing policies and processes, altering the dynamics of power and impacting governance structures and the way organizations as a whole perceive them. The degree of executive involvement, therefore, determines the way processes are executed and affect governance standards existing prior to their involvement.

However, such involvement should not be seen as essentially disturbing. According to Dawes and Pardo [14], leaders can institutionalize governance practices by building and enabling collaborative systems. In a study of knowledge networks in the public sector, Dawes [58] acknowledged the importance of "suitable incentives for sharing information", an endeavor that poses higher responsibilities on the role of executives and substantiates the significance of their involvement in fostering collaboration. Such role, which encompasses leadership behaviors such as consultation and inspirational appeals [59] goes beyond the notion of the pure exercise of authority [57], and influences the success of knowledge networks. In turn, those networks will enable information sharing and collaboration and foster the attainment of organizational and inter-organizational goals.

## 2.4. A preliminary model

Based on current literature, it is reasonable to argue that both information needs and executive involvement can affect governance structures and practices that will ultimately lead to effective IIS initiatives. Although theory proposes such relationships, the empirical nature of existing connections deserves more systematic consideration. Integrative studies can be insightful about theoretical

landscapes developed so far and relativize results given some specific assumptions. Expanding upon Pardo's information sharing model [34], we set out to quantitatively test to what extent information needs and executive involvement affect governance and how governance has an impact on IIS project success. Figure 2 depicts both constructs and their role at shaping governance structures and practices.

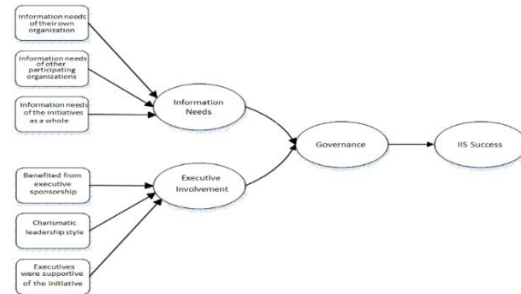


Figure 2. Preliminary Model

## 3. Research Design and Methods

This section briefly describes the research design and methods used for this study, including the data collection, the variable measurements and the analysis techniques. The paper is based on data collected from a national survey<sup>1</sup>. Considering our interest to test the direct and indirect relationships linking the leadership mechanisms and success of IIS projects, the data was analyzed using Structural Equation Modeling (SEM) techniques in order to account for the endogenous – exogenous relationships among the variables. The following subsections provide more detail about our data and analysis techniques.

### 3.1. Data and Data Collection

This study analyzes data from a national survey conducted in the United States in April 2008.<sup>2</sup> The original dataset consists of 173 responses and after the data cleaning we use 160 responses for our analysis. The respondents were public managers involved in information sharing initiatives in two policy domains: Criminal justice and Public Health. The questions were related to several variables as potential determinants of information sharing as well as items measuring the relative success of the initiatives.

### 3.2. Variable Measurements

<sup>1</sup> For more information about the survey, refers to Gil-Garcia et al (2009) / <http://ieeexplore.ieee.org/document/4755561/?arnumber=4755561>

<sup>2</sup> When aiming to test theory, the use of older data does not present a significant problem, as it is expected that the relationships among the variables, if shown, are generalizable and stable over time.

We are interested in testing the influence of three variables (see Figure 2). The description and measurement of each variable is provided below:

- a. Governance. We adopt a broad definition of governance from Lynn, Heinrich and Hill (2001) and define the governance variables as the policies and standards that constrain, prescribe, and enable the working collaboration of participants in the IIS project. This variable is a composite variable measured in a 7-point Likert scale. We run Chronbach's alpha to test the reliability of the measurements of this variable and the result is 0.9055 which indicates excellent reliability, well above the threshold of 0.70.
- b. Information needs. This variable measures the extent to which participants were knowledgeable about the information needs of their own organizations, the information needs of other participating organizations, and the information needs of the IIS initiatives as a whole. This is a composite variable combining three constructs in which all questions are measured in 7-point Likert scales. We run Chronbach's alpha to test the reliability of the measurement of this variable and the result is 0.8503, which also indicates good reliability, well above the threshold of 0.70.
- c. Executive involvement. This variable is also a composite variable measuring the role, sponsorship and support of executives for an IIS project. We use the following three constructs to measure the variable: a) the support from elected officials (other than legislators), b) the sponsorship from high-level executives, and c) the support from relevant individual executives. The reliability of this variable in terms of Chronbach's alpha is 0.7353, which is still above the threshold of 0.70.
- d. Success of Inter-organizational Information Sharing and Integration. Adopting Eglene et al.'s [57] argument, the success variable is measured in three ways, as follows:
  - Overall success. This variable measures whether the IIS participants deem that, taken as a whole, the project was a success. This variable is measured in a 7 point Likert scale ranging from "Not at all (1)" to "To a great extent (7)".
  - Met the policy objectives. This is a 7-point Likert scale variable measuring whether the participants agree that the project met its stated policy objectives and goals. The values also ranged from "Not at all (1)" to "To a great extent (7)".
  - Technology success. This is a composite variable consisting of three constructs measuring

technology success. The construct asks the participants whether they agree that the project is a success technologically in terms of creating: a) information systems that can communicate with each other, b) interoperable computer systems and networks and c) an integration of disparate databases into new data resources. Each of the constructs is measured in a 7-point Likert scale. The reliability of this variable measured by Chronbach's alpha is 0.8757.

- Organizational success. We define this variable as measurement of success in terms of the benefits that IIS brings to the organization. We measure the benefits to organizations in 5 ways: a) improvement in the day-by-day operations of government, b) greater effectiveness of policy deliberation, c) improved efficiency, d) direct benefits to people, group and organization, and e) cost savings. This is also a reliable composite variable with Chronbach's alpha of 0.8589.

### 3.3. Analysis Techniques

Data analysis in this study was conducted in two stages. The first stage created the composite variables using principal component factor analysis. The reliability of the resulting variables was examined using Chronbach's alpha values (Table 1). As mentioned previously, all the Chronbach's alpha values were above 0.70, representing acceptable levels of reliability. The second stage tested the structural model. We employed the structural equation modelling approach using Lisrel 8.80. To analyze the fit of the model, we used several information criteria as presented in Table 2.

**Table 1. Means and Chronbach's Alpha Values**

Variables	abb	ii-cor* / $\mu$	$\alpha$
1. Executive Involvement	Exec	1.382	0.7353
2. Information Needs	Info	1.123	0.8503
3. Technological success	Tech	3.409	0.8757
4. Organizational success	Org.	1.551	0.8589
5. Governance	Gov	2.207	0.9055
6. Overall success	Suc	5.783	-
7. Met stated policy objectives	Poli	5.726	-

\* ii-cor refers to average of interrelation correlation

### 3.4. Analysis and Results

This section presents the results of our analysis. First, we present the results in terms of the overall model goodness of fit. Then, this section explains the impact of information needs, executive involvement and governance on IIS success and some of the relationships among them.

### 3.5. Model Fit

We measured whether our proposed theoretical model (Figure 2) is a plausible model based on the survey data. We present the goodness-of-fit measures in Table 2. The results indicate that based on the value of the goodness-fit-index, the fitness test signifies adequate fit. However, the results also show that the fitness of the model depend on how the IIS project success was measured. For instance, the  $\chi^2$  value for the overall and policy success models indicate a less fit model when measured using  $\chi^2$ . The  $\chi^2$  value for the technological success, however, is 0.801, which is significantly lower than the  $\chi^2$  cut-off value of 11.07 (df=5, p=0.05), meaning that the model has a good fit. As such, although in general the results signify that the tested models provide adequate explanations for the structural relationships among variables certain types of success present a better fit than others. The results in table 2 indicate that the model's best fit is the one about technical success. Less fit exists in predicting the structural relationships for organizational success.

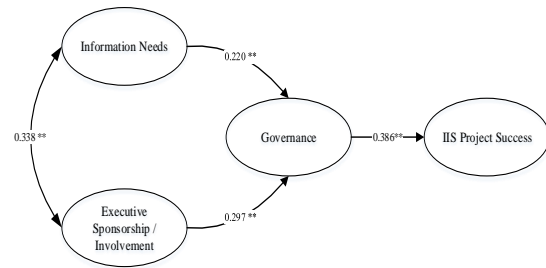
**Table 2. Model Goodness-of-fit**

Model goodness-of-fit indexes	Cut-off values	Overall Success	Policy Success	Tech. Success	Org. Success
$\chi^2$	< $\chi^2_{table}$	13.62	13.34	0.801	21.87
(p)	$p > .05$	0.001	0.001	0.670	0.000
Goodness-of-fit index (GFI)	$\geq 0.90$	0.961	0.962	0.998	0.940
RMR	$\leq 0.10$	0.087	0.087	0.020	0.111

## 4. The Structural Relationships between Determinants of Governance to Success

Figure 3 presents the significant standardized path coefficients for the overall success model and table 3 presents the structural parameter estimates for the four models. The results indicate strong support for all

hypothesis on the influence of information needs and executive involvement on the success of IIS through the mediation of the governance variable.



**Figure 3. Model with Standardized Path Coefficients for Overall Success**

### 4.1. The Influence of Governance on the Success of IIS Project

We found positive and significant direct relationship between governance and the success of IIS projects. The results show that governance significantly influences the likelihood of IIS project success at 0.99 confidence level with t-value of 5.25 for overall success, t-value 3.72 for policy success, t-value of 6.90 for technical success and t-value of 4.53 for organizational success.

This finding signifies that the establishment of policies, rules and standards to govern the relationships among the participant is crucial for ensuring success in the IIS project. The results also indicate that the influence of governance on the success of IIS projects is more dominant if the project success was measured as technical success and least dominant if the project success was measured as meeting policy objectives.

### 4.2. The Role of Knowledge about Information Needs to Facilitate Success of IIS Projects

We found positive and significant and indirect relationship between the participant's knowledge about the information needs and the success of IIS projects. The results show that the knowledge of participants regarding the information needs in the project significantly influences the success of IIS through the mediation of governance at 0.99 confidence level with t-value of 2.54 for overall success, t-value 2.29 for policy success, t-value of 2.67 for technical success and t-value of 2.45 for organizational success. The results also indicate the significant influence of information needs to the governance of an IIS project with the coefficient estimate of 0.220 and t-value of 2.88. That means that one standard deviation increase in the participants'

knowledge about the information needs of the project will significantly increase the governance of the project by 0.220. This findings thus point to the fact that if the participants were knowledgeable about the information needs of their own organizations, the needs of other participating organizations, and aware of the information needs of the initiative as a whole, the effectiveness of the governance in terms of using policies and standards to organize the collaboration effort will increase. Subsequently, the effectiveness of governance will result in the success of the IIS project.

#### 4.3. The Role of Executive Involvement and Sponsorship on the Success of IIS Projects

We also found a significant impact of executive involvement on the success of IIS when mediated through governance variable at 0.99 confidence level with t-value of 3.14 for overall success, t-value of 2.70 for policy success, t-value of 3.41 for technical success and t-value of 2.97 for organizational success.

Comparing the coefficient estimates, the influence of executive involvement on success is stronger when IIS project success is measured as technical success and overall success and the influence is lowest when success is measured as meeting policy objectives. The coefficient for the total effect between executive involvement and IIS success measured as technical success is 0.143. This means that one standard deviation increase in executive involvement will increase the chance of success by 0.143.

outcome of the project by making the governance process in the collaborative project stronger and more efficient.

### 5. Discussion

Results obtained lead to important reflections for research and practice. First, they confirm prior theoretical contributions by Pardo et al. [8] that both information needs and executive involvement are significant predictors of governance structures and practices. Governance, on the same token, is also ratified as influential to the IIS projects ( $\beta = 0.386$ ) as well as effectively mediating the relationship between those constructs and IIS success.

Another comparison suggests that the impact of executive involvement in governance ( $\beta = 0.297$ ) is more prominent than the impact of information needs ( $\beta = 0.220$ ). Although both are significant, if policy choices were to be made with regards to picking one over the other, better governance results would be obtained if initiatives target executive involvement.

Another interesting finding is how sensitive results were to the way success was measured. This finding is consistent with Eglene et al. [59] argument that determinants of IIS success differ in accordance to how success is measured. Our four models led to noticeably different results. Governance seems to have a higher impact in IIS success if such success is measured from a technology perspective ( $\beta = 0.481$ ).

**Table 3. Structural Parameter Estimates for the Four Models**

Path Coefficients	Overall Success		Policy Success		Tech. Success		Org. Success	
	$\beta$	<i>t</i>	<i>B</i>	<i>t</i>	$\beta$	<i>t</i>	$\beta$	<i>t</i>
Governance → Success	0.386	5.25	0.284	3.72	0.481	6.90	0.339	4.53
Information needs → Governance	0.220	2.88	0.220	2.88	0.220	2.88	0.220	2.88
Information needs → Governance → Success	0.085	2.54	0.063	2.29	0.106	2.67	0.075	2.45
Executive → Governance	0.297	3.88	0.297	3.88	0.297	3.88	0.297	3.88
Executive → Governance → Success	0.115	3.14	0.084	2.70	0.143	3.41	0.101	2.97

*\*) all relationships are significant at 0.01 level*

We also found positive and significant, direct relationship between executive involvement and the governance of IIS project. The results show that executive involvement significantly and directly influences the governance at 0.99 confidence level with t-value of 3.88 and coefficient estimates of 0.297. The result signifies that the effectiveness of governance in IIS project will increase by 0.297 if executive increases their involvement or sponsorship by one standard deviation. As such, by increasing their involvement in and sponsorship to the IIS project; executives could significantly influence the possible

In fact, both governance and executive involvement seemed to be more saliently related to IIS project success if such success was measured from a technical perspective. Because the technical perspective of our survey is fundamentally concerned with technological aspects, we can infer that governance and executive involvement generate perceivably positive impacts to the success of IIS projects. The fact that determinants of a relatively “soft” nature present value through technical lenses provide insight on bridging the enduring gap between what executives do and what technology brings to the

table. Although it is not the concern of this study to assert what executives do that lead to IIS, results reinforce evidence that governance and their involvement, combined, seem to be enhancing the quality of the technological outputs.

Alternatively, if success is measured from a policy perspective, the magnitude of the impact governance has on success is sizably lower ( $\beta = 0.284$ ). Besides, measuring success according to whether policy objectives were met or not seemed to lessen the relative relevance of executive involvement as well. We believe that such discrepancy shows the construct's sensitivity to forms of measurement and imply that determinants should not be analyzed unilaterally. In face of the exploratory nature of this study and of the many determinants in the literature that were not considered in our analysis, we believe conclusions should not be deterministic. Instead, variations in the way one interprets executive involvement's relative importance should be eye-opening to how different segments of the organization may perceive success. If executive involvement in a given organization is perceived by interviewees to be particularly low, for example, the perception on success measured in this study may vary widely from what the average perception – and the organization reality - is.

As it is the case in similar studies, perception here can be an intricate issue. Discrepancies between the technological success and policy objectives perspectives may actually suggest a disconnection between technology, its perceived usefulness and, ultimately, its goals in the organization. If perceptions of governance and executive involvement are more sensible to a technological perspective than to the goals certain policies are set out to accomplish, the way those policies are designed should be revisited and analyzed in the light of the technological capabilities and delivery. Is technology delivering what is supposed to if stakeholders do not believe policy objectives are being met? Are policies designed in such a way that governance structures can enact technologies and foster collaboration? [8], [32]. These are important questions because, while governance is a known way to addresses such mismatch, much is still yet to be explained, especially with regards to the contextual scope of governance.

## 6. Practical Perspectives and Implications

It is important to highlight the mediating role governance plays. Adding governance to our analyses considerably reduces the magnitude of the impact the determinants have in IIS success. That does not necessarily mean governance is a poor indicator. Quite to the contrary, we believe that opens avenues for more

investigations about the nature of governance, further exploring other determinants identified in previous studies. The mediation between information needs, governance and IIS success when taking a technology perspective is approximately 68% stronger than if the measurement was made from a policy perspective and about 41% stronger than when the organizational success was considered. Such discrepancy is similar when the relationship between executive involvement, governance and IIS is analyzed.

This study also showcases the apparent co-dependence observed in the two determinants – information needs and executive involvement. None of them can be arbitrarily disregarded in a mutually-exclusive manner and future studies could further explore their interrelationship. Rather, they should be considered strategically, side-by-side. Since prior research stated that collaboration and information sharing seem to be the answer to the information silo challenge, our results help putting those solutions in perspective, shedding light to what policy aspects can be successful at fostering successful ISS initiatives. In fact, as per our extended model, looking at those determinants from different perspectives can be insightful.

Accounting for different measures of success is also critically important. In order to comprise those deviations, researchers should be cognizant of the number of perspectives allowed by multi-method investigations. The beauty of its comprehensiveness may get us closer to “truth” or “reality”, but no overarching perspective should be embraced as definite and immune to the many interpretations of certain terms such as “involvement”, “need” and “success” and the implications of their circumstantial uses. Future empirical studies should carefully relativize nuances associated to those terminologies.

## 7. Conclusion

This study empirically identifies a more measurable perspective on information needs and executive involvement, constructs whose study can be epistemologically intimidating due to its not so tangible essence. Complementing the richness of previous qualitative approaches with the rigor of quantitative analysis enhances conceptual understanding and, particularly for this study, elucidate the relationships information needs and executive involvement share with governance and IIS.

Future research can expand theoretical grounds on their interdependence and help to identify not so obvious overlaps in their ontological nature. Additionally, other statistical approaches can shed light to the iterative and recursive nature of some of these relationships. Executives' involvement, for



instance, may be jeopardized by not having certain information needs met and endemic lack of executive involvement may be shaping an organization culture in such a way that addressing information needs poorly or not well enough has become the norm and, therefore, problematic for governance. These are hypotheses that are worth being investigated empirically. We argue that the research agenda for IIS and its determinants will continue to benefit from the clarity yielded by integrative approaches and rigorous empirical studies.

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