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## INVESTIGATING THE IMPACT OF ORGANIZATIONAL CULTURE ON INFORMATION TECHNOLOGY GOVERNANCE

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### Abstract

This article seeks to explore the perceptions of companies' top managements regarding the role of corporate culture and ethics in attaining highly mature IT governance. It mainly focuses on testing the correlation between five IT governance mechanisms or factors and the effectiveness level of governance in big companies in Lebanon. A sample of 76 executives has been empirically tested through a survey. Findings showed that the main enabling mechanisms of governance in IT are "Communication Approaches" and "Top Management inclusion in IT" with an average influence for corporate culture and ethics.

### Keywords

IT governance, organizational culture, ethical compliance, ITG framework.

### JEL Classification

C12, M14, M15

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### Introduction

The bankruptcy of Enron in 2001, Lehman Brothers in 2008, Thomas Cook in 2019 and a long list of big companies worldwide has placed corporate governance again, embracing IT governance, as one of the top critical concerns encountered by top managements. Even governments have been stimulated to make legislations and laws in response to collapses and scandals such as the Sarbanes-Oxley (SOX) Act of 2002 in the US in order to ensure investors a high level of protection against fraudulent financial reporting by corporations (Kenton, 2020). Picou and Rubach define corporate governance as "... *the construction of rules, practices and incentives to effectively align the interests of agents with those of principals*"(2006). This alignment has to be achieved and sustained through honest and transparent adherence to ethics or ethical standards far beyond regulations and rules.

#### ***Business-IT interdependency***

In the contemporary business world, companies spend a significant percentage of their annual budgets on information technology infrastructures. Trueman (2019) believes that "...*Chief*

*Information Officers are now routinely being challenged to use IT strategies and solutions not only to advance digitalization but to simultaneously drive business innovation and transformation*". This reality attracts executives (e.g. BOD, CEO) to actively collaborate with CIOs and to focus on a reasonable governance of all information technology facets in businesses. The Information System Audit and Control Association (ISACA) (2009) defines IT governance as *"IT governance is basically concerned with the way IT delivers value and it's the management of the risks associated with it which can be brought about through the strategic alignment of business and IT, resource management and performance management"* Khther and Othman (2013) assert.

### **Motivation of Study**

Maverick (2019) defines moral hazard as risk-taking; moral hazard exists when one party of an agreement or contract (formal or not) takes uncommon risk while being fully conscious that any possible negative outcomes would be a burden at the second party's shoulders. CEOs and CIOs could witness moral hazard throughout their collaboration; it is originally traced back to "asymmetric information" where CIOs enjoy greater knowledge about IT issues than do CEOs, who would incur any adverse consequences in front of the board. Thus, CEOs are substantially invited to proceed with business governance of IT strategies and projects so as to prevent immoral attitude from the side of CIOs or other IT executives, and to push them to converge on the company's overall common interest.

Besides, some scholars argue for the strong relationship between organizational culture, as an independent variable, and corporate governance as the dependent one. Accordingly, we believe that organizational culture contributes deeply to building and applying IT governance (ITG) in a very effective way. Organizational culture is briefly defined to be the collection of common values and beliefs shared among employees in an organization (Tsai, 2011). Therefore, the main research question is: How powerful is the role of corporate culture in enhancing the mechanisms of IT governance of companies operating in Lebanon? Two sub-questions emerge: What are the factors which could support the evolution of culture's role? Which factors have the most prominent impact on culture's role?

After reviewing the available literature on IT governance in Lebanon, we found a few articles tackling this topic (e.g. Hejase et al., 2016). However, we can argue to a certain extent that our paper is the first empirical study, through a survey, aiming to investigate the association between a sound culture and effective IT governance in Lebanon. Furthermore, this paper targets to advancing the knowledge of top managements about the strong positive influence of ITG mechanisms on the success and effectiveness of IT governance.

### **Literature Review**

It is necessary to explain the theoretical foundations upon which our investigation is based. Hence, this section is divided into two sub-sections. First one discusses the origin of the governance terminology as well as its significance, while the second one forms a review of the past studies which explored the relationship between culture and IT governance.

#### **Origin of IT Governance**

It has been presumed that owners of companies invest their wealth and expect it in return to be maximized despite the risk they incur; however they are often not involved in the daily business operations. On the other side, managers are the decision makers who hold zero risk while concentrating essentially on protecting their positions and financial income. This conflict of interest is called *"the principal-agent problem... differences of opinion and even differences in priorities and interests can arise"* (Kopp, 2019). Principals strive to constrict this problem depending on specific measures and procedures such as forming a Board of Directors with corporate governance as one of its core duties so that stakeholders are assured that deceptive activities would never be permitted. Simultaneously, the agents are required to secure high levels of scrutiny in front of the owners through employing external parties within

the audit committees for example. Subsequently, top managements must effectively engage in the information systems.

Many researchers have studied the components or mechanisms of robust IT governance. For instance, Levstek et al. (2018) adopt the most influential ITG mechanisms of De Haes et al. (2005) which are a mixture of structures, processes and relational mechanisms e.g. IT steering committee, IT performance management and job rotation. Belhaj and Zahi (2019) empirically verify the leading mechanisms of ITG; they find a positive interrelation mainly between IT strategy committee, IT steering committee, and active participation by principal stakeholders and the level of ITG effectiveness.

As for the ITG frameworks, there are various ones with different approaches. The Control Objectives for Information and Related Technology (COBIT) serves as a guide for companies throughout its own ITG, starting from the micro level till reaching the highest level, but being repressive. COBIT is beneficial for connecting the technical issues, business risks and the need for control. On the other side, the Australian Standard focuses on the strategic level.

To summarize, Filatotchev (2007) categorizes the ITG approaches into defensive and strategic. The defensive ITG acts a firewall which bans or at least alleviates any possible harmful output. Whereas the strategic ITG aims to provide companies' owners with a long lasting business value like a robust competitive advantage for IT related projects.

#### ***IT Governance and Organizational Culture***

Since many years ago, researchers have been exploring the impact of organizational culture, specifically its ethics, on the ability of companies to conduct effective corporate governance. Carlos Ghosn, the ex-Nissan's board chairman, was arrested for financial misconduct in 2018; this case highlighted the poor governance procedures at Nissan. Senior management has to increase the knowledge of its employees on ethical and legal aspects to behave responsibly and ethically whenever confronting a suspicious situation. Also, this should motivate employees to disclose any wrong behavior to their management. In brief, the existence of a culture where ethical compliance is a shared organizational value among all employees is expected to boost what Trevino et al. (1999) call "sense of community".

Nonetheless, a small number of studies have researched the cause-effect relationship between culture & its ethics and ITG. In 2011, the IT Governance Institute completes a survey in which organizational culture was voted by 50% of respondents as a very significant factor or mechanism supporting effective ITG, while 57% say that the strategy and objectives of business is the top powerful factor (ITGI, 2011). Moreover, COBIT 2019 emphasizes a soft side of ITG where it encompasses a primary component, the "Culture, Ethics and Behavior", to be a core objective of top management (ISACA, 2018). This development is considered an extension of the original COBIT framework (1996), which is found on the hard side of ITG i.e. processes and structure.

#### **Research Model**

This paper tries to discover the perceptions of companies' top management regarding the role of corporate culture and ethics in attaining highly mature IT governance. This is stimulated by the fact that ethical environment is anticipated to support companies in accomplishing its needs of ITG and thereafter aligning its business strategies & objectives with those of IT. Finally, the research model of our study (Figure no. 1) is structured based on the available literature and addressed using questionnaire technique.



Fig. no. 1 The Research Model of ITG Effectiveness

First, we think it is beneficial for readers to explain each factor or mechanism of ITG, as included in the research model, and then to provide a relevant hypothesis for empirical test.

#### **Communication Approaches**

Organizational communication is a leading enabler of a healthy environment of internal control (COSO, 1992). Communication is supposed to support the satisfaction of the wealth/value maximization goal of owners, controlled by ITG. A crystal clear whistle blowing policy is a perfect example of communication systems which promotes the potency and efficiency of a culture of ethical compliance.

Thus, H1 is: Effective communication approaches positively affects a culture of ethical compliance.

#### **Top Management Inclusion in IT**

Top management refers to executives like CEO or others reporting directly to the CEO. Schwartz argues that “*management support and setting the example*” are the most influential mechanisms that leaders should adapt in order to push employees to behave ethically and to align their conduct with organizational objectives (2004). Similar to communication systems, management inclusion in IT boosts facilitates the wealth/value maximization goal pursued by owners.

So, H2 is: Top management inclusion in IT positively impacts a culture of ethical compliance.

#### **Organizational Culture and Ethics**

As previously discussed, a healthy ethical environment is vital for fulfilling the desired ITG goals of companies as well as business-IT strategic alignment (BITA). This kind of environment is expected to satisfy owners concerning their wealth maximizing objective. Then companies must take some brave steps such as following an ITG framework (e.g. COBIT), practicing a transparent whistle blowing policy, and doing whatever is necessary for increasing employees’ ethical knowledge.

Hence, H3 is: A culture of ethical compliance positively affects ITG effectiveness.

#### **IT Steering Committee**

IT steering committee is a team composed of executives at the top managerial level and belongs to various departments. The IT Governance Institute specifies the major tasks of this committee to be the realization of BITA, “*tracking IT investments, setting priorities and allocating scarce resources*”(ITGI, 2003). This committee is a significant mechanism for wealth or value maximization too.

Therefore, H4 is: IT steering committee positively affects ITG effectiveness.

#### **IT-Business Executive Committee**

IT-Business executive committee, equivalent to “IT Strategy Committee” as per the IT Governance Institute, is “*one of the most effective mechanisms for establishing governance over IT*”[16]. Boards rely on particular committees like the audit committee in order to perform their governance over the most critical departments. In the same way, boards have to engage in IT governance through an IT-business executive committee; the ITG Institute

defines the duties of executive committee as “*considering how the board should become involved in IT governance, how to integrate the board’s role in IT and business strategy, and the extent to which the committee has an ongoing role in IT governance*”.

So, H5 is: IT-business executive committee positively affects ITG effectiveness.

### **Research methodology**

The above explained five hypotheses are subject to empirical test through a questionnaire targeting nominated categories of executives or managers i.e. Chief Information Officer (CIO), Chief Executive Officer (CEO), General Managers (GM) and internal audit managers. Respondents belong to different industries but working exclusively in large companies within Lebanon, as we believe corporate governance, mainly IT governance, is a privilege for this size of organizations. The dependent variable is the ITG effectiveness level and the independent variables are: communication approaches, top management inclusion in IT, organizational culture/ethics, IT steering committee and IT-business executive committee.

The questionnaire includes a combination of self-developed questions and other already tested or validated mechanisms of IT governance. Regarding the scale, the authors follow a 6-point Likert scale.

The questions included in the adopted questionnaire are as follow:

*ITG effectiveness level:*

1. Could the maturity level of strategic alignment be ranked as high enough to contribute to achieving common business and IT goals? (Smeureanu and Diab, 2019)
2. Do the individual ITG mechanisms strongly contribute to achieving highly effective organizational ITG? (Ali and Green, 2007)

*Communication approaches:*

1. Could top management rely on the organizational communication mechanisms or systems to make employees completely aware of the existence of ITG mechanisms? (Weill and Ross, 2004)
2. Could top management rely on the organizational communication mechanisms or systems to make employees completely aware of the ITG decisions and processes? (Weill and Ross, 2004)

*Top management inclusion in IT:*

1. What is the extent to which top management is engaged in strategic discussions and decisions related to IT, other than the IT steering committee? (Vaswani, 2003)
2. What is the extent to which top management recognizes the IT inventions created by competitors? (Vaswani, 2003)

*Organizational culture and ethics:*

1. What is the extent to which corporate culture and its ethics support management in voiding any transgression preventing the accomplishment of organizational IT objectives? (Trevino et al., 1999)
2. What is the extent to which top management is leading a culture of ethics helpful to IT goals? (Trevino et al., 1999)

*IT steering committee:*

1. What is the extent to which IT steering committee directs strategic IT projects while aligned with the overall strategic business directions? (Ali and Green, 2007)
2. What is the extent to which IT steering committee is leading the acquisition of business value out of strategic IT projects? (Ali and Green, 2007)

IT-Business executive committee:

1. What is the extent to which IT-business executive committee contributes to attaining business-IT strategic alignment? (IT Governance Institute, 2003)
2. What is the extent to which IT-business executive committee guides top management in IT strategy issue? (Hardy, 2003)

General Managers, CEOs, CIOs and internal audit managers represent 46%, 24%, 18% and 12% of respondents respectively. The mean managerial experience is 8.9 years where respondents are familiar with IT governance scoring 5 on a 6-point scale as an average. To test the goodness-of-fit of the model, we did a Chi-square ( $\chi^2$ ) test and concluded that  $113.04 \gg 30.6$  with 15 degree of freedom at a critical value of 0.01. This means that the model greatly fits our data.

### Findings and interpretations

An online questionnaire has been sent to 367 executives of large enterprises; we received back 76 complete responses. We calculated the Cronbach's Alpha to test the reliability of our model as well as its constructs. Cronbach's Alpha of the model is  $0.843 > 0.70$  which implies that it is reliable and valid. Also, the Cronbach's Alpha scores of the model's constructs are all reliable and valid too (Table no. 1).

In order to test the hypotheses among the constructs or variables of our model, we decided to use the SPSS software for statistical analysis and outputs are presented in Table no. 2.

Communication approaches has a strong positive influence on the organizational culture and mainly its ethics (H1). This factor or mechanism has the highest Pearson coefficient; approaches such as anonymous hotlines and clear whistle blowing procedures are significant enablers of a supportive corporate culture of ethical compliance. This would make IT governance mechanisms, decisions and processes well known for employees.

**Table no. 1 Reliability Test of the Model's Constructs**

Construct	Cronbach's Alpha
Communication Approaches	0.83
Top management inclusion in IT	0.84
Organizational Culture & Ethics	0.84
IT Steering Committee	0.83
IT-Business Executive Committee	0.82

Likewise, top management inclusion in IT has also a strong positive impact on the organizational culture and mainly its ethics (H2). The involvement of senior managers in discussing and making strategic IT decisions and their awareness of the major IT steps of competitors has been shown to be very effective in developing a culture where ethical compliance is prioritized.

Organizational culture and its ethical component have a positive effect on the level of IT governance effectiveness (H3); however this effect was found to be moderate. A culture where top management leads actively and by example the ethical compliance and conduct is likely to motivate employees to disclose any potential misconduct, therefore contributing to better quality of managerial decisions. This would assist in protecting the core goals of IT governance from any threat.

**Table no. 2 Pearson Correlation Coefficients of the Variables**

Dependent Variable	Indep. Variable	Sign of Hypot hesis	Pearson Coef.	Signifi- cance
Culture/Ethics	<b>H1 Communication Approaches</b>	+		<b>0.000</b>
	Comm. ITG mechanisms		0.824**	
	Comm. ITG decisions	+	0.981**	<b>0.000</b>
	<b>H2 Top mgt inclusion in IT</b>			
ITG Effectiveness Level	Mgt engaged in decisions	+	0.879**	<b>0.000</b>
	Mgt aware of competitors' IT		0.712**	
ITG Effectiveness Level	<b>H3 Culture and Ethics</b>	+		<b>0.000</b>
	Culture/Ethics vs. violation		0.766**	
ITG Effectiveness Level	Mgt leading an ethical culture	+	0.751**	<b>0.393</b>
	<b>H4 IT steering committee</b>			
ITG Effectiveness Level	Committee and BITA	+	0.133	<b>0.101</b>
	Committee and Business value		0.077	
ITG Effectiveness Level	<b>H5 IT-Business executive committee</b>	+		<b>0.101</b>
	Committee and BITA		0.170	
ITG Effectiveness Level	Committee guides top mgt		0.018	

On the contrary, findings could not support hypotheses H4 and H5 proposing positive influence of IT steering committee and IT-business executive committee on the organizational effectiveness level of IT governance. The direct explanation of this rejection probably means that respondents have not perceived an important role of IT steering committee to direct the strategic IT projects and derive business values from within. Moreover, this could signify that respondents have seen a low expected participation of a committee formed by business and IT executives in reaching and preserving IT-business strategic alignment, and in guiding or advising top management concerning the prime IT strategic issues. This conclusion surprisingly contradicts the findings of Smeureanu and Diab (2019), where a joint committee of IT and business executives was found to be the second most influencing enabler of the maturity level of strategic alignment in big organizations in Lebanon.

**Conclusions**

This study aims to investigate the impact of organizational culture, with essential focus on its Ethics element, on the maturity of IT governance in big companies running business in Lebanon. Respondents occupy senior managerial positions since they are CEOs, CIOs, GMs and internal audit managers. The findings clearly manifested the big contribution of a sound corporate culture, with high degree of ethical compliance regarding IT, to the effectiveness level of IT governance. The main enabling mechanisms are found to be “*Communication Approaches and Top Management inclusion in IT*”. The “*Organizational culture & Ethics*” mechanism by itself could not be supported empirically, which might be caused by the perception that the involvement of top management is the fundamental driver of ethical compliance in companies. Furthermore, we can conclude that an effective managerial intervention, boosted through clear communication systems, is capable of cancelling the need to establish both of IT steering committee and IT-business executive committee as per the judgment of our study’s respondents.

This paper could serve, to the best of our knowledge, as the first attempt to empirically test the correlation between organizational culture & ethics and the maturity & efficacy of IT governance adopted by companies of big size in Lebanon. It should alert senior managers or executives to take serious initiatives, such as those tested in this study, and to sponsor the creation and/or evolution of healthy ethical culture of compliance. Over and above, our work should stimulate other scholars to conduct further studies whether to test the same ITG mechanisms in different context (e.g. emphasizing on a specific industry or SMEs) or to find out positive impact of other cultural or ethical factors on ITG.

On the other hand, our ITG model has been tested subjectively based on the perceptions of respondents. Although respondents are seniors or executives, this should not deny the necessity of discovering more objective measures so as to increase the reliability of findings.

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