Critical Organizational Challenges in Delivering Business Value from IT – the Perspective of Lebanese CIOs

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Abstract: The collective body of theoretical and empirical research in Information Systems (IS) comes mainly from the West. While there is emerging IS research in some developing countries and parts of the Middle East, the research agenda in Lebanon is so far non-existent. This study forms part of a larger research project to explore and analyze the perceived value of IS and the organizational competencies needed to deliver that value in Lebanon. Many of the challenges faced by Lebanese organizations are also dominant in the literature. These include resistance to change, which is often found in large and mature organizations and often exacerbated by enterprise IS projects. Other common challenge include how to enrich the IS literacy of Line Managers and users; how to improve CIO to CxO relations; and management of benefits to be derived from IT. There are, however, many challenges that are unique to Lebanon, which include the overabundance of family owned and controlled businesses, with consequent mixed impacts on the management of IS. Lack of political, economic and social stability in Lebanon poses further challenges, as does the heavily regulated telecomm sector resulting in expensive, unreliable, and inconsistent access to networks and bandwidth. Further challenges arise from the often damaging effects of the local culture of individualism, procrastination, and entitlement. There are also many challenges associated with the growing pains of the IS discipline in Lebanon, including: lack of formal IS Governance; heterogeneous and unduly complex applications architectures; talent management; and how to improve the competence of partners. These challenges may best be mitigated by developing organization-wide IS competencies, and the development of these competencies is an organization-wide responsibility.

Keywords: IT Value; IT Competencies; IT Challenges; IT Capability; ERP CSFs; CIO.

1. Introduction

While the predominant source of Information Systems (IS) research comes from the West, there is emerging IS research in developing countries and in the Middle East region. Although the IS literature coming out of Europe and the USA is relevant to the global community of academics and practitioners, valuable insights could be gained from the experiences of companies in other countries and continents. This paper reports the first part of a larger research project to explore and develop theories explaining how organizations derive business value from their investments in IS, and what competencies are critical to sustain that value, within the context of Lebanon. The aim of this paper is to develop a general baseline of the IS landscape in Lebanon, and to explore and assess the key challenges Lebanese organizations face in delivering business value from IT/IS and to suggest how these may be mitigated through the point of view of the CIOs in these organizations.

2. Literature Review

2.1 The ever elusive value of IT

DeLone and McLean (1992), through a comprehensive literature review of IT success measures, observed that "*in searching for an information systems (IS) success measure, rather than finding none, there are nearly as many measures as there are studies*". These authors developed an integrated view of IT success by defining six major dimensions: systems quality, information quality, use, user satisfaction, individual impact, and organizational impact. Later, DeLone and McLean (2003) added the concept of service quality and net benefits, reflecting the positive or negative impact of IS on customers, suppliers, employees, organizations, markets, industries, economies or even society.

The term IT business value has been commonly used to refer to the organizational performance impacts of IT, including productivity enhancement, profitability improvement, cost reduction, competitive advantage, inventory reduction, and other measures of performance (Devaraj and Kohli, 2003; Hitt and Brynjolfsson, 1996). General expectations are that IT provides services with better quality at a low cost and low business risk with increased agility (Govekar and Adams, 2010). Kohli and Grover (2008) have defined value as the ability to improve access to information, and the ability to generate value from information, and improving the quality and abundance of information.

There isn't a single agreed upon measure of the impact and value of IT, and there are many stakeholders involved in the IT value proposition each having different and often competing needs. The business executive's view of IT value may be different than the view of the corporate IT function, and this in turn, may be different than the view of the actual users of IT, and the view of the other organizational stakeholders, such as customers, partners, and suppliers. While there's general agreement on the overall expectations, benefits, and resulting business value from IT, there continues to be challenges in delivering that value.

2.2 ERP implementation Challenges

Momoh et al., (2010) conducted a detailed review of the critical factors that cause enterprise resource planning (ERP) implementation failures, based on an in-depth literature review (1997-2009). Nine factors were found to be critical in the failure of ERP: excessive customization, dilemma of internal integration, poor understanding of business implications and requirements, lack of change management, poor data quality, misalignment of IT with business, hidden costs, limited training and lack of top management support.

2. 2 How to get value from IT

In the quest to find the "silver bullet" for deriving business value from IT, scholars and researchers have prescribed a number of different cures. Some advocated the use of IT Governance (Marshall et al, 2007; Sambamurthy and Zmud, 1999; Peterson, 2004; Weill and Ross, 2004). Others have suggested the use of formal benefits management processes to manage value throughout the lifecycle of the IT value proposition (Peppard, 2007; Ward and Daniel, 2008).

There is also a large body of research evaluating individual competencies needed by the Corporate IT function and the CIO. Periasamy and Seow (1998) identified five critical success factors for the CIO to deploy IT to deliver optimal value to his organisation promptly and successfully. Lane and

Koronios (2007) found that the role of the modern CIO has become increasingly business focused and strategic, and that soft skills dominate the critical competencies. For example, Polansky et al. (2004) presented a 10 Point Leadership Agenda for CIOs, which comprised IT strategy; IT governance; IT organisation and staffing; technology and architecture; technology awareness; corporate governance; business intelligence; business transformation; customer care; and Internet and e-business. CSC (1997) defined six leadership roles for the CIO (e.g. Chief Operating Strategist) and Remenyi et al. (2005) used the analogy of the Chameleon to describe the key characteristics of CIOs (e.g. the ability to change).   Chun and Mooney (2009) found that much of CIO role has evolved to the executive-level management and is centered on working with other business executives inside and outside of the firm to change the firm's strategy and processes.

A stream of research has looked beyond the individual competencies needed by CIOs and the corporate IT function, and stressed the importance of user-related and other contextual attributes as contributing factors to IS success. Sabherwal et al. (2006) developed and tested a comprehensive theoretical model linking IS success with four user constructs (user experience with IS, user attitude towards IS, user training in IS, and user participation in the development of IS), and two constructs representing the context (top-management support for ISs and facilitating conditions for ISs). Several authors (Armstrong and Sambamurthy, 1999; Feeney and Willcocks 1998; Sharma and Yetton, 2003) emphasized the importance of non-CIO executives taking an active role in the planning of IS. Peppard and Ward (2004) argued that competence is an organizational concept that reflects a bundle of skills and technologies while capabilities are related to the strategic application of competencies in order to achieve business objectives.

2.3 The country-specific CIO Experience
A number of other authors have explored the challenges faced and competencies needed by CIOs within the context of a particular county. For example, to understand the individual competencies required of CIOs in Brazil, Vreuls and Joai (2011) evaluated seven competency models found in literature and used a pure quantitative approach to identify CIO competencies from the perspective of Brazilian CIOs. They concluded that CIOs should possess/develop knowledge of the business; understanding of the organizational context; the ability to influence the organization; technical expertise; external networking; management of the information technology operation and the capacity to innovate using new information technologies.

Zuo and Maou (2005), carried out the first academic study in China with regard to CIO state and impact. The CEO's perspective in that study was that CIOs need to be more business-oriented, requiring soft skills and relationship management skills. Using a different approach, Gottschalk (2000) looked at CIO roles in Norway, which lead to the identification of required competencies. Oracle conducted a study in 2011 and included information from a number of regional CIOs/organizations (e.g. Saudi Arabia, Emirates, Jordan, Dubai, India and other emerging markets). They found that the IT knowledge and competency of non-IT people (general Management and the users) is weak and that CIOs are surrounded by executives who have an inadequate awareness of IT capacity.

3. Data Collection
The data in this paper has been collected from interviews with the CIOs of the participating organisations. Two interviews with each of the participating CIOs were conducted, followed by an offline collaboration process, using email as the platform to confirm and to prioritize the challenges raised during the interviews. Next, a one day forum was organized allowing the CIOs to meet each other and to collaborate real-time on the key challenges. The forum was also used as an opportunity to plant the seeds for a more permanent platform for CIO collaboration and for future research, which ultimately resulted in the formation of the *"CIO Lebanon Association"* officially approved by the Lebanese Ministry of Interior.

Data from Kompas (2009) was initially used to identify the total population of industries and organizations. Subsequently, a sample was selected to include organizations that represented the four key industries in Lebanon: Banking, Healthcare, Higher Education, and Retail (77% of the sample included such companies).   It was also important to choose organizations that had significant experience in IT/IS, and with no prior IS studies to reveal that population, organization size (no. of employees) was used as a substitute to select the participants (35% of large organizations and 8% of medium size organizations in Lebanon were included in the sample), (See Tables 1 & 2):

Table 1: Lebanese organizations and sample used

	Total for Lebanon	Sample
No of Organisations > 500 employees	78	26
No of Organisations 250 - 500 employees	122	10

Table 2: Participating organizations

Sector	Sample
Banking	11
Healthcare/Hospitals	6
Higher Education	6
Airline carrier	1
Post office	1
Retail	5
Telecomms	1
Printing	1
Logistics	1
Pharmaceuticals	1
Food & Beverage	1

4. Results
A total of 14 key challenges were identified as follows:

4.1 Change resistance
The majority of CIOs indicated that it was very difficult, costly and time consuming to implement business process changes and related behavioral changes in their organizations. This was by far one the most important challenge raised. The CIOs attributed this challenge to a number of factors, including: the ownership of IT projects resting upon the IT function; not having or not adopting a formal change management process which clearly identifies and communicates the required changes and responsibilities required to make such changes; the lack of IT literacy of the users and management; lack of a Benefits Management process; having powerful users with self-serving and hidden agendas; and lack of having change champions, and the lack of empowering the CIO to be change agents.

According to the majority of CIOs, the mitigation of this challenge requires organizational leadership that recognizes the strategic value of IS investments and empowers CIOs to partner with the users to resolve the above factors.

4.2 IT illiteracy of Management and users
While this was generally less of an issue in some sectors (e.g Higher Education), this was a major issue preventing the majority of participating organizations in getting maximum value from IT. The CIOs of organizations that had this issue attributed it to a *"generational gap"* claiming IT illiteracy among their older employees who were still in charge of key management positions. Other CIOs blamed the Higher Education sector in Lebanon for not preparing future managers adequately in the use and exploitation of IT. While most of the participating organizations had developed employee training programs, the training was more oriented to developing general IT literary competencies, rather than developing IT planning, exploitation, and value extraction training.

4.3 Inadequate CIO to CxO Relations
The title of CIO was only given to four of the participants, while others held a number of other titles, including Director of IT, Head of IT, and IT Manager. Three of the CIO positions were in the Banking sector, and one in Higher Education. More than half of the participants reported directly to the top executive. 80% of the CIOs in the Banking sector reported to the COO, and only one of the CIOs in

the Higher Education industry reported directly to the President, the rest reporting to the VP of administration position. In other sectors, it was a mixed bag, with some CIOs having direct access and strong relationships with their CEOs, and others reporting to lower level executives and therefore lesser potential impact on their organizations. Where the relationship was direct, the CIOs enjoyed a strong and productive relationship, resulting in an equal seat at the executive table and a direct involvement and impact to their organization's strategy. Many of the CIOs who did not hold that title, or did not report directly to their CEOs expressed a deep concern and attributed this issue to the lack of appreciation of the strategic value of IT within their organizations.

4.4 Lack of formal and comprehensive benefits management

None of the participants had implemented a comprehensive benefits management program. While some (25%) had developed formal processes at the early stage of planning IS investments (by using business cases), and others (50%) had formal project management practices during the implementation stage of IS projects, none had any meaningful management practices at the post implementation stage. It also seemed that the majority of companies and their management were not interested or capable of measuring the value of their IS investments. Of those companies that were measuring, the focus was either on project efficiency measures (in-flight, or during IT project implementation metrics) such as: delivery of projects on time, on budget, and according to customer scope and requirements; or the focus was more on IT operational measures (availability, throughput, and response time).

The majority of CIOs were also struggling to convince their users to own or at least co-own the responsibility of deploying information systems and more importantly the responsibility of reaping the benefits from such investments. In addition, the business value of IT was poorly defined and vaguely understood and not common to all stakeholders within the organization. More than 40% of organizations viewed IT as a cost center, rather than as a partner in generating value.

4.5 Family business ownership

With the exception of organizations that were owned by religious entities (three Hospitals and three Universities), or public organizations (two were involved in this study), or organizations that weren't family owned (two Universities, and two other organizations), all remaining 26 organizations were family-owned, which constituted 72% of the participating organizations.

The predominance of family business ownership is one of the characteristics of the Lebanese economy. In family firms, property and control are so firmly entwined that family members are involved in both strategic and day-to-day decision making, and the firm is shaped by dynastic motive. As evidenced by this research, the family impact extends to large organizations, and many organizations in the thriving banking industry, for example, were closely held by extended families. Five of the family-owned organization felt that family-ownership was a positive situation because it involved leaders who were also owners that cared about the longevity and long-term viability of their firms, as opposed to leaders that were only in these positions to establish short term gains. All remaining family-owned organization CIOs indicated serious disadvantages arising from family ownership, such as unfair and inconsistent human resource policies in the recruitment, selection, and promotion of employees.

4.6 Lack of formal IT Governance

While a number of organizations, especially the ones in the Banking sector have instituted structural forms of governance, in the forms of organization-wide IT steering committees to approve and manage enterprise IT projects, IT decision rights were, in the majority of organizations, owned and exercised by the Corporate IT function. Many of the CIOs attributed this to the lack of technology literacy of their Management and users. There was also an emergence of enterprise-wide Project Management Office (PMO) structures in a few organizations, but these were in their very early stages. The PMO function either did not exist (75% of cases), or was just being implemented.

4.7 Complex IT applications architectures

The applications architecture (AA) construct is a conceptual model representing departmental and enterprise information systems in support of operational business processes and analytical decision-making. The challenge as described by the CIOs was that their AA was very complex, difficult to

support, did not fully support their business strategy, and was not flexible. The most significant issues include:

- *Legacy information systems* built with technologies that are no longer supported by technology vendors, and no longer taught at universities or technical schools.

- *ERP systems that have been heavily customized and which were no longer supported by ERP vendors.* Almost every CIO indicated at one time or another having difficulty and/or failing to implement enterprise applications. Two of the major retail organizations had customized their ERPs to the point where it was impossible for them to upgrade to a new version of the ERP.

- *Too many technology solutions which made it difficult and costly to support.* One major bank's AA included every conceivable database management platform

- *ERP deployment approach.* This involved organizations that were headquartered in Lebanon but also operated in multiple counties throughout the Middle East. Due to the exorbitant cost and unreliable and slow Internet service in Lebanon and in the region, they were forced to implement a de-centralized ERP architecture causing delays and inaccuracies.

- *ERP implementation failures.* One involved a major company that spent three years and millions of dollars failing to implement their ERP, and a few cases that implemented successfully only after several failed attempts.

- T*he majority of CIOs did not have a clear AA roadmap or strategy*, and even if such a roadmap existed, it was not a formal planning process linked with their overall business planning process.

The CIOs attributed these challenges to a number of factors including: having weak change management processes and not being empowered enough to enforce changes; immaturity of local implementation partners; inadequate IT literacy of line managers and users; the lack of viable local ERP providers; and the lack of reliable and affordable country infrastructure. These factors also alluded to the significant interrelationship of the 14 challenges raised. Finally, given the fragmented and complex nature of their AA, the CIOs felt the need identify, develop and sell the role of a chief architect. The majority of organizations did not have a dedicated resource in support of their convoluted AA.

4.8 IT Talent Management issues
This was mentioned as a key issue by more than 70% of the participants, and it was a more acute issue when it came to finding senior level people. A number of the CIOs felt that this was a much bigger issue 5 years ago when talent was being lost to higher-paying markets outside of Lebanon. However, due to the economic problems in the Gulf, and the relative stability in Lebanon, CIOs felt that this issue was more under control.

4.9 Budgetary Constraints
This was more of a challenge in the Healthcare sector, as most of the organizations in this sector had cash flow issues due to significant delays in receiving remittances from the Government. The CIOs in the Healthcare sector indicated that the biggest share of their revenues came from government-insured patients (75%), and only 25% of their patients had private insurance. This was also a challenge in smaller organizations.

4.10 Political, economic, and social instability
Lebanon has witnessed many devastating wars before and after its independence from France in 1943. The most devastating recent war lasted for over fifteen years beginning in 1975. Another recent war in 2006 resulted in the destruction of the country's majority of infrastructure. Since 2006, the country continued to experience many additional conflicts inside the country and throughout its surrounding neighboring countries. Many of the CIOs expressed total frustration and lack of control over these issues and found this to be the most serious challenge they faced.

4.11 Telecommunications issues
During the initial interviewing process, this challenge clearly emerged as the top challenge among most CIOs. Issues related to the reliability, availability, and cost of Internet bandwidth was a key concern. This even resulted in three of the organizations having to compromise the architecture of their core ERP system. The affected organizations had several branches in the region, and have deployed an ERP product in a totally de-centralized architecture/approach. Had they had more reliable and affordable Internet access, they would have chosen to deploy these ERPs using a centralized architecture/approach.

4.12 Lack of Governmental IT laws
One of the key issues raised by the majority of CIOs is the lack of any governmental ICT legislation regulating and protecting the electronic rights of organizations and consumers.

4.13 Local culture issues
This was mentioned by the majority of CIOs as a key and possibly detrimental factor in not only getting business value from IT, but in getting any value from the business. Three of the CIOs that are currently engaged in re-engineering their entire organization spend the majority of their time (one CIO indicated that it is as high as 70% of their time) dealing with and managing cultural transformation. The issue of "entitlement" was dominant in larger organizations, and in organizations that were family-owned.
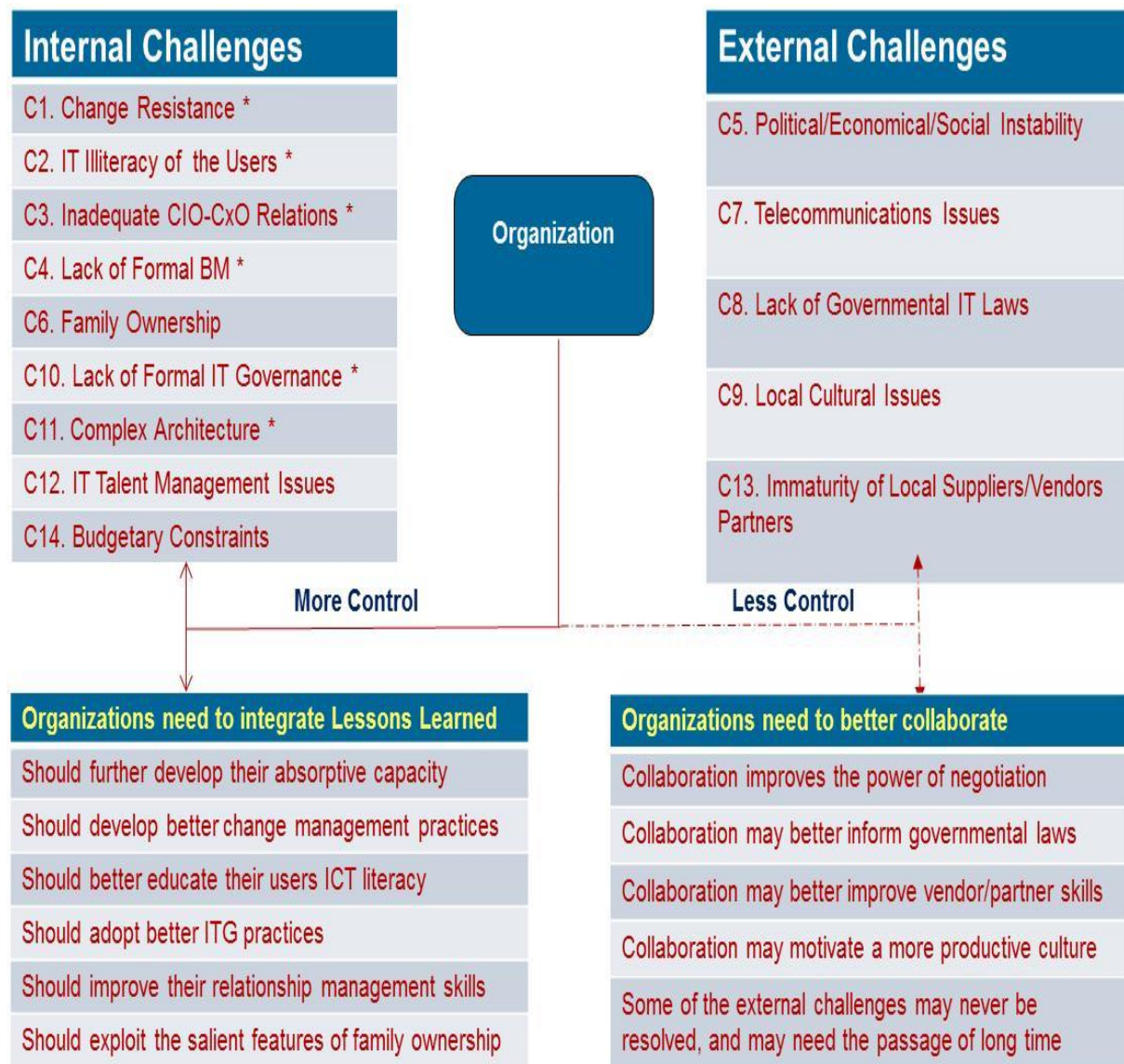
4.14 Immaturity of local suppliers, vendors, and partners
All CIOs indicated their extreme dissatisfaction with local software and professional services organizations, and expressed a need and commitment to help improve these vendors' service levels. Also of deep concern in the Hospital sector was the lack of ICT competence in doctors, which created a key challenge in rolling out IT applications and services. In the Higher Education sector, there were similar issues with Faculty members who did not want to be involved in the planning, implementation or roll-out of applications, and when it came to using such applications, they abdicated that responsibility to their assistants.

5. Conclusions and Future Steps
Figure 1 shows the key challenges of delivering business value from IT in Lebanon and how these challenges may be mitigated. These challenges may be categorized as either "Internal" - contextual to an organization's micro environment, or "External" - contextual to the larger macro environment an organization operates in. Nine of the challenges may be classified as internal, and therefore may be easier to mitigate, as compared to the remaining five challenges which are external and more difficult to mitigate. Given the right impetus, an organization may be able to mobilize resources and develop organization-wide competencies to mitigate such challenges. By empowering CIOs to be "change agents", developing the proper organizational context, and motivating the appropriate organizational behavior, organizations in Lebanon may be much more effective in getting value from their IT/IS investments.

However the external challenges are more significant and may have a heavier impact on the organization, and their mitigation may require resources and strategies that may be more difficult to achieve and are beyond the control of the organization. Organizations may team up and collectively collaborate on finding solutions for these external challenges. Such collaboration platforms may have a better chance to improve governmental laws and regulations, and motivate local vendor and partners to improve their services, and to create the seeds for a more productive culture.

Internal Challenges

C1. Change Resistance *

C2. IT Illiteracy of the Users *

C3. Inadequate CIO-CxO Relations *

C4. Lack of Formal BM *

C6. Family Ownership

C10. Lack of Formal IT Governance *

C11. Complex Architecture *

C12. IT Talent Management Issues

C14. Budgetary Constraints

Organization

External Challenges

C5. Political/Economical/Social Instability

C7. Telecommunications Issues

C8. Lack of Governmental IT Laws

C9. Local Cultural Issues

C13. Immaturity of Local Suppliers/Vendors Partners

More Control　　　　　**Less Control**

Organizations need to integrate Lessons Learned

Should further develop their absorptive capacity

Should develop better change management practices

Should better educate their users ICT literacy

Should adopt better ITG practices

Should improve their relationship management skills

Should exploit the salient features of family ownership

Organizations need to better collaborate

Collaboration improves the power of negotiation

Collaboration may better inform governmental laws

Collaboration may better improve vendor/partner skills

Collaboration may motivate a more productive culture

Some of the external challenges may never be resolved, and may need the passage of long time

* Also dominant in the Literature

Figure 1: Key Challenges and How to Mitigate

The challenges faced may be classified as either "Internal" or "External". Internal challenges may be easier to mitigate since they may be less dependent on external resources. Also, many of the internal challenges were also found in the literature (see * above, and literature section above). Given the abundance of the extant literature, Lebanese organizations should develop their "Absorptive Capacity", which is a firm's ability to identify valuable external knowledge, assimilate or transform this knowledge into the firm's knowledge base, and apply this new knowledge through innovation and competitive actions (Cohen and Levinthal 1990). This would allow them to evaluate and integrate relevant lessons learned in "Change Management", "IT Governance:, and other related practices.

External challenges appear to be more contextual and unique to Lebanon, and may require different mitigation strategies. For example, family-owned businesses, as some organizations in this study indicated, may have salient features and practices that should be shared and exploited, but the disadvantages of such organizational and management structures may require market corrections which may take a long time to materialize. The governmental constraints may also be eventually corrected, as was the case with some improvements in Internet bandwidth capacity that were observed as this study was unfolding. The issue with the local culture of procrastination and entitlement may also be improved with the passage of time, and with the constant flow and injection of

"new blood" and new practices from other/Western countries, which was also observed as this study was unfolding. The CIO Lebanon Association platform which was launched as a direct outcome of this research provides organizations in Lebanon the opportunity to mitigate challenges by collaborating and sharing local and international best practices.

This paper reflected upon the Lebanese CIO's point of view and experience regarding the value of IT and how to attain it. Future research projects should also assess the point of view of other organizational stakeholders, which in turn would provide a more complete picture of how to best deliver business value from IT.

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