

The role of IT Governance in Enhancing the Competitiveness of For-Profit Private Schools' Business

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The Dissertation report submitted to the Faculty of Informatics- in partial fulfillment of the requirements for a degree of MSC in IT Management from the British University in Dubai (BUiD).

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December - 2010

Abstract.

IT governance is one of the topics that has emerged suddenly and became an important information issue in the information technology and business era. Many organizations around the world have realized the importance of formal IT governance practices to attain the generated business value, overall organizational effectiveness through IT. Underlying goals for adapting ITG include improving business performance and attaining competitive advantage over competitors in the same business sector.

This exploratory study examines the dearth of empirical evidence about ITG in practice in an attractive for profit private school business sector that has not been explored prior to this work. It examines the level of Senior management's awareness regarding IT and ITG, how IT governance is implemented, its status in the current settings of for-profit private school business, the inhibitors, enablers, and perceived outcomes of ITG in a for-profit private school business context.

This paper contains interpretations regarding existing theories and concepts, models and finding of other researchers in the field of IT governance and hence also presents the research questions that are derived from it. Multiple research strategies were considered in order to explore how for-profit private school business are implementing IT governance and to analyze the relationship between these implementations and achieving competitive advantage and business value.

Just like any other industry, the for profit private school business's reliance on IT in achieving organizational effectiveness and efficiency has increased as a form of sustaining competitive advantage in a hyper business sector. Hence, resulting in higher IT investments attempting to create new ways of competition to the school business. In spite of the awareness of for profit private schools of the vitality of IT in creating value to their business, these schools still show that the awareness of ITG related aspects and its effects on the organizations has not yet reached an acceptable level. The schools show a lack of understanding of the way IT business value can be measured, and the role of IT in innovation that can bring in business opportunities, hence not realizing the full potential of value created via IT. However, the current context of the for profit private school business sector is promising and does show that there are a number of good ITG implementations and practices in place, which were basically a result of reaction taken to different IT

related aspects over the years. It is evident that schools are attaining competitive advantage basically through the ITG implementations more than the affect of the management's awareness and support, and more than the affect of increasing enablers and decreasing inhibitors on achieving value. The results show a strong positive relationship between the implemented ITG practices, ITG maturity levels and, the outcomes of IT in creating value.

Therefore, the potential of IT is yet to be exploited in for profit private school business. The interest in IT indicates a positive environment for greater innovation to the use of IT to deal with the challenges facing the education services in the UAE and for the use of ITG to gain the proposed value expected from IT while achieving competitive advantage. This leads to the urgency for schools to consider reformulating the working practices of ITG to ensure IT is bringing in the proposed value to the organization.

Based on the results of this study, a number of recommendations are suggested to school owners, directors and to educational authorities, in order to ensure higher levels of value return on IT and IT related aspects to achieve competitive advantage. Senior management need to take ownership of IT governance in for profit private school business and to be held accountable over all IT aspects. IT should be considered a strategic partner and ITG needs to be part of the overall school governance. Moreover, there is an urgency of increasing senior management's awareness of the importance of IT and ITG through good training, orientations, or external advisory. The need to use formal ITG frameworks to consider ITG from a holistic perspective that can be used to enhance the value of IT for the organization and lead to being at a competitive edge. Hence, Educational Authorities from a statistical position should consider the importance of ITG in both public and private schools to attain the value created through IT and provide all the necessary support required to raise the awareness and realization of the necessity of considering ITG in schools.

Further research needs to be conducted to explore the reasons impeding the for profit private school business from realizing the role of IT in creating innovations, and the reasons for the absence of professional IT –business value measurement metrics that hinder the realization of IT's potential in creating value. In addition, to exploring the actual value created via effective ITG implementations in isolation of any other factors.

Acknowledgements

This dissertation would not have been possible without the guidance and the help of several individuals who in one way or another contributed and extended their valuable assistance in the preparation and completion of this study.

Above all, I thank my Lord ,the one above all of us, for answering my prayers and for giving me the strength to complete this challenging work and for allowing me to be a student n this respectful University with very outstanding staff members that helped making the impossible true.

I would like to extend sincere gratitude to my scholarship donors, the MBRF for providing me the scholarships and research grants for which I would have never been able to do without their support; thanks for making my dream come true.

First and foremost, my utmost gratitude to Dr. Mohammad Dulaimi, whose sincerity and encouragement I will never forget. I would like to record my gratitude to Dr. Dulaimi for his supervision, advice, and guidance from the very early stage of this research as well as giving me extraordinary experiences throughout the work. Above all and the most needed, he provided me unflinching encouragement and support in various ways. His truly scientist intuition has made him as a constant oasis of ideas and passions in business science, which exceptionally inspired and enriched my growth as a student and a researcher.

Dr. Saad Amin, The Dean of Information Technology Management, who I was extraordinarily fortunate to have as my Master degree Supervisor. Dr. Saad kindly supported me when help was needed, guided me throughout my studies, and encouraged me to do the best. With his support, and advise, things were always perfect.

Dr. Sherief Abdullah has been my inspiration as I hurdle all the obstacles in the completion of this research work in particular and all throughout the master program in general, he has never refused to provide me with the support and guidance I needed from the very start of my journey.

Special thanks goes to Mrs. Nanadin who kindly gave me all the support I needed from the first day I stepped into the University, as without her support things wouldn't have been as good as they were, special thanks to her for helping me to overcome all the hard times I went through.

Dr. Ashly Pinnington, and Dr. Paul Gardiner, for the insights they shared, the generous time they gave, and their never-ending support they provide when ever needed.

It is a pleasure to express my gratitude wholeheartedly to all the University staff starting with Dr. Abdullah Al Shamsi, as the warm, comfortable friendly atmosphere with so supportive understanding staff is one of the reasons of achieving success to me. I would never find such high professional friendly supporting staff elsewhere. I thank God for giving me the opportunity to be a student in BUiD which I'm really proud of and really enjoyed. Thanks to all BUiD staff.

Special thanks go to Mr. Godwin, Mrs. Farzana, Mrs. Sinu, all the librarians, and IT staff for their bighearted support at all times.

Where would I be without my family? My parents deserve special mention for their inseparable support and prayers. My Father, Dr. Hameed Aljuburi, in the first place is the person who put the fundament my learning character, showing me the joy of intellectual pursuit ever since I was a child. My Mother is the one who sincerely inspired me with her caring and gently love. Sundous, Aisha, Alaa, Kholoud and Ahmad thanks for being supportive and caring siblings and children.

My sincere gratitude wholeheartedly to all my best friends especially A. Al Shamsi who made this thesis possible by encouraging me, and giving me all the moral support I required. In addition to making available all the resources and software I needed while also providing me with their rich insights and discussions of all matters of the research. With their support, they eased my life and drew the smile on my face even when I was desperate.

Finally, I would like to thank everybody who was important to the successful completion of dissertation, as well as expressing my apology to those that I could not mention personally one by one.

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The role of IT Governance in Enhancing the Competitiveness of For-Profit Private Schools' Business

"We're going to have to recognize there's a revolution. And if you don't take action, there's a threat of more legislation like Sarbanes-Oxley that would require companies to provide more disclosure on IT investments, and the risks of these investments."

-Harvard Business School Professor Emeritus Richard L. Nolan (Nolan,2004)

Chapter 1:

1.1 Introduction:

In many organizations and within different context and structures, Information Technology (IT) has become vital in the support, sustainability, and growth of such businesses. This pervasive implementation of technology has moved technology from the position of being a tool or a supporter of business to being a business enabler and an active partner of the business. This new era of technology existence calls for a specific focus on IT Governance (ITG). ITG consists of the leadership, organizational structures, processes and relational mechanisms that ensure that the organization's IT sustains and extends the organizations strategy and objectives (ITGI,2003; Van Grembergen,2001).

Internationally, there is an evident discernment of the necessity and importance of ITG and its positive influence on the business. In a survey conducted by PwC and ITGI in 2008 which targeted 255 Non- IT Executives from all around the world, it was noted that more than half the participants agreed that there is a realization of the value creation of IT and its' importance to achieve the business's strategy and goals in their organizations. However, another one-third noted somewhat important contribution of IT, whereas 13% consider it not to be important or even are not aware of its contribution.

As ITG is highly finding its way on Executive board's agenda, and many organizations have implemented ITG practices to some level, it has become the point of interest of many researches. Many research has been done to define the conceptual aspects of ITG, and it's implementation, also extensive research has been done to explore different ITG aspects under certain context such as in financial firms, SME, large enterprises or in similar contexts but in different countries.

Similar to any other business sector, the for-Profit Private Educational sector (PES) from a business perspective has also gained a slice in the evolutionary growing importance and influence of ITG on organizations. This business sector has become a very important profitable business. Extensive research has been considered regarding the use of technology in enhancing teaching and learning, but no research has been done on the “business side of this sector” in general and on the impact of ITG on PES in particular.

Competition, sustainable competitive advantage, and differentiating within the PES have compelled those owning and directing the schools to consider not only the educational aspects of their schools, but also the business perspective of it. This sector which is very attractive to investors, due to its stability and safe nature, that is far from being affected by any financial breakdowns or recessions, as it is a type of forever-demanded community service provider.

For the last 10 years, competition has raised dramatically as followers mimicked market leaders in any initiative of differentiation they might consider, therefore there was a need to take a totally different trend in achieving differentiation and therefore sustaining competitiveness. This new direction was the implementation and use of technology in such organizations. As a start, technology was used as a tool to help in enhancing the learning and teaching process to make it more enjoyable and effective, thus attracting more customers (students in this case) to the school. For the majority of the schools this was not enough, and competition created rivalry. IT climbed to reach the board of governors agenda's and like blood in the vines; it reached all parts of the enterprise's aspects starting from administrative level down to daily operational levels. At this point, IT Management was not enough to control the rapid process of this never-ending demand and reliance on technology. Moreover, IT management could not speak the business language nor could the business side understand the technical aspects of IT, hence, leaving a communicational gap between IT and Business. Executives started to comprehend this gap by realizing the improper balance between the large IT investments and the actual value IT creates having in mind that there is actually no clear evidence of this value creation due to the absents of proper IT/business measurement metrics. In addition, Executives realized that with the growing use of IT in such contexts, more risks have emerged that need to be tracked and controlled. These requirements call in for the need of effective ITG implementations to help align business and IT, create value, and, manage risks therefore leading the PES

business sector to achieve organizational excellence, sustain competitiveness, and achieve anticipated stakeholder value.

1.2 Overview

All over the UAE, ITG has gained spectacular importance and concern of top executives and governing bodies as is the case internationally. This realization of the importance of ITG is evident in the implementation of ITG in many governmental organizations such as: (Dubai's governments, Abu Dhabi Commercial Bank, Abu Dhabi Islamic Bank, Abu Dhabi Police, ADCO, ADGAS, ADMA-OPCO, ADNOC Distribution, ADNOC Main, Dubai Immigration, Dubai Islamic Bank, Dubai National Bank, ETISALAT, National Bank of Abu Dhabi, National Drilling Company, Private Department of HHS Khalifa Bin Zayed, UAE Armed forces (GHQ), UAE Central Bank, UAE University, Union National Bank, ZonesCorp, Emirates Identity Authority, as a few to mention (Al-Ali,2010; Nbiz Infosol, 2010). Unfortunately, similar implementations are rarely found in the PES sector in particular and in the educational sector in general. In the UAE, the National education system is characterized by free Arabic Public school systems that have been open for local students only. In 2006, these schools started to allow the enrollment of Non- locals for a nominal school fee. Alternatively, there are the private schools that cater for the needs of the majority of expats population. A wide variety of international schools exist, where different curriculums are covered (13 different curriculums) and more than 200 different nationalities, yet the most interesting fact is that 85% of education in the UAE is private with an annual growth of 10% (KHDA,2010, ADEC,2010).School fees range from 5000 AED (£125) to 60,000AED (£8,700) per academic year.

Most of the Emirati families send their children to reputable private schools, believing that this will provide better future opportunities for their children and help in being up to international standards of education. All schools comply with the regulations set by the Ministry of Education (MOE). Recently all schools are being audited for quality assurance by ADEC (Abu Dhabi Educational Zone) which started its activities on 2008, and by KHDA (Knowledge and Human Development Authorities) in Dubai commencing its activities in December 2006. These educational authorities attempt to create quality schools meeting international standards affiliating with other international accreditation

bodies such as the Council of International Schools and New England Association of Schools and Colleges.

Most of the schools have sought accreditation from international educational recognized agencies, such as the Commission on International and Trans-Regional Accreditation (CITA), New England Association of Schools (NEAS&C), European Council of International Schools (ECIS), Middle States North Central Association (NCA) and many others. External Accreditations are not mandatory; in fact, they are a voluntary activity which is deemed by many schools to prove to their customers (parents of students and students) that they are providing quality education as a source of differentiation in this sector and away of business attraction (Saayman, 2007).

The population of the UAE is rapidly inflating, where it is considered having one of the highest population growth rates internationally. This is due to the flow of foreign labor into the UAE which is very high, as a result of high oil prices, the wealth of job opportunities, attraction of international investments and so forth. Based on census data analyzed in 2005, 38.1 % of the country's population has formed in less than 14 years which is estimated to be 4 million (Gulf News, 31st July 2006; Census, 2005).

The UAE recently has overtaken Egypt as the second largest Arab Economical Centre after Saudi Arabia, reflecting the country's exponential, explosive population and economical growth (WEOD, 2010; Central bank of the UAE, 2008).

With the high number of young people in the large population demographics, along with demands of parents in seeking quality education for their children given a wide variety of schools to choose from; for profit-private schools have found themselves in a more challenging competitive environment. Moreover, due to the current expansion rate, more schools are opening, therefore adding more rivalry to this sector.

One innovative initiative which was started by His Highness Sh. Mohammed bin Rashid Al Maktoum was the dramatic change into an IT in Education era, as IT has become a major priority for Dubai and the UAE in general. H.H. Sh. Mohammed launched his IT Educational project in March 2000, where it has eventually been implemented throughout the Emirates (ITEP, 2001). The aim of the project and other following initiatives was to achieve differentiation and excellence by enhancing the learning and teaching process via the use of computers and IT. For some time, this did work as it was considered an effective differentiation method which made a difference in the attractiveness of the school to its

customers. Shortly, this initiative became a normal routine practice introduced in all schools. More technology was imported into most of the schools, where technology became an integral aspect in all levels of the school's activities and processes. School directors realized the importance of IT investments in maintaining their competitive advantage and sustaining their business position in this challenging business sector.

The more technology introduced, the more control over cost/benefits was required, in addition, more risk management was necessary to control and manage the risks associated with the rapid evolution of technology such as privacy issues, information security, server down time and so forth. Nevertheless, the lack of a common communication language between business and IT was a counter stone in the face of realizing real value creation of IT in these organizations, as business always seeks for outcomes and value, whereas, the IT side always involved technical aspects such as software, hardware, infrastructure setting while neglecting the business value returned from such implementations. Adding to that, due to the fact that IT implementations are still recent in most schools, the majority of schools do not have devoted CIO's and suffer lack of experience of the business side of IT.

The competition of seeking innovative IT practices as a means of achieving competitive advantage and a new form of differentiation in the private educational sector, has led to the rapid use of IT without proper preplanning and the inefficient management of such valuable assets. In most cases, this resulted in the schools' IT investments outweighing the returned benefits from valuable IT assets. As a result, schools have tried to outsource the management and control of IT assets to external bodies, which in most cases also considered the functional and operational side of IT not considering the strategic influence of IT on the schools business value. Many schools took a self-initiative to explicitly, or implicitly introduce ITG practices in their organizations to some extent to encompass this strong powerful business enabler even if they were not familiar with the terminology itself.

From the discussion above, it is evident that IT implementations, management, and governance is as important in the educational sector as it is to any other industry or business, in order to effectively create value, manage risks, align business and IT to achieve competitive advantage and hence attain organizational excellence.

1.3 Problem statement:

As discussed in the overview section, there is an imperative need to govern IT effectively in private educational institutions to perceive created value and sustain anticipated organizational goals. Thus, it is important to explore the current status of schools in terms of effective ITG implementations, the level of awareness of senior school directors and boards, what practices they have in place, what barriers are they encountering and what competitive advantage will effective ITG implementation convey to these organizations within the current framework of for profit private school business in the UAE context.

1.4 Research Aim

The aim of this research is to undertake an exploratory study to determine the degree of ITG implementation in UAE for profit private educational schools. In addition to define the level of school directors awareness and realization of the value of ITG, also to defining the drivers, enablers and barriers impeding such implementations which will consequently lead to defining the way these organizations perceive competitive advantage and organizational excellence as a result of effective ITG practices.

1.5 Research Objectives

The objectives are developed to achieve the stated aim of the research and are listed as follows:

- To investigate the extent of ITG realization, recognition, and value perception in the for-profit private educational sector in the UAE.
- To evaluate the status of the current ITG practices implemented in for-profit private schools , and the ITG maturity level.
- To define the factors that might influence the level of ITG in schools including the enablers and the main barriers impeding effective implementation of ITG.
- To identify the perceived IT value created in for profit private schools as a result of ITG implementations.

1.6 Research Questions:

The objectives are then used to formulate the research questions that this paper will propose to answer:

- To what extent is ITG realized, recognized, and considered as a business partner in the for profit private educational sector business.
- What is the ITG status of the current ITG practices in for profit private school business? What is the level of ITG maturity and ITG performance rates in for profit private schools
- What are the main factors including enablers and barriers impeding the effective implementation of ITG in for-profit private schools in its current context? And how do they affect the perceived outcome from ITG?
- What is the perceived value created through effective ITG implementations in for-profit private schools?

1.7 Research Pattern and Scope

Throughout the research process, extensive literature review was covered to understand the basic concepts of ITG, its influence on organizations, its barriers, Critical success factors, and frameworks.

The knowledge generated, will then be applied in creating a survey to measure the current ITG structures needed to measure the value IT creates in for profit private school business.

The gained information will then be analyzed and compared to similar practices in other industries and in the educational sector in particular understand the status of ITG in for-profit private schools, factors affecting its effectiveness, the affect of management's realization and awareness of IT and finally the perceived outcome from good ITG. The proposed framework will basically be tailored around the current UAE context considering the local culture, environments, and educational demographics of the UAE in which these targeted private schools currently operate.

The results obtained in this study were intend to tackle a new- neglected business sector that has not been explored in terms of the potentials of ITG implementations and

practices and their influence on such an attractive business sector, in creating value and sustaining competitive advantage. Therefore, the research contributes in helping investors, school managers and national accreditation authorities (Abu Dhabi Educational Council (ADEC), Knowledge, and Human Development Authorities (KHDA) to identify the potentials of ITG effective implementations. It will also help these educational bodies in realizing the effect of effective ITG implementations on achieving organizational excellence by understanding the current ITG maturity level, its weaknesses, barriers and forms or IT returned value; to help schools boost their IT capabilities. The paper also intends to comply with the concept of [consumable IS/IT research] as denoted by (O’Keefe & Paul, 2000), being both academically meticulous and beneficial to practice. This is achieved by identifying the drivers, enablers, inhibitors and created IT value expected from effective ITG, which could help schools in building a solid realization of the benefit of ITG and its implications to the for-profit private schools business sector.

The dissertation comprises five chapters, which help in addressing the defined objectives of the research. A brief description of each follows,

Chapter 1- Introduction:

The introductory chapter addresses the scope of the dissertation, where it provides an adequate background regarding the for profit educational sector in the UAE and its economical importance. It also provides a thorough explanation of why this sector has aimed to the implementation of IT in all levels of the organization. The introduction then clarifies the relationship between the private educational sectors, IT, and ITG, therefore explaining why effective ITG is necessary to sustain the competitive advantage in this business sector. The aim of the research is to examine the current ITG practices in the PES, and define the barriers impeding effective implementation practices that lead to organizational excellence. The objectives of the research were extracted from this aim and research questions were then formulated.

Chapter 2- Literature Review:

In this chapter, thorough critical literature review as conducted, to review the prevailing conceptual theory related to Corporate governance, ITG, its practices, impacts on

organizations goal attainment, drivers, enablers, impeding barriers, forms of the expected returned or created value of IT and ITG, available frameworks and the relation between Corporate governance and ITG. Moreover, the importance of competitive advantage for the private educational sector was also adequately covered to determine the competitive forces surrounding this business sector. ITG implementations in the educational field was also explored to examine the findings of international research in this sector, literature was then extended to examine the relationship between the educational context and ITG. Finally, frameworks and best practices of effective ITG implementations were also investigated to analyze and see how they are and can be implemented in an educational context.

Chapter 3- Methodology

This chapter describes the method adopted to achieve the set of proposed objectives of the research. First of all, the research is exploratory rather than hypothesis testing in nature as there has been little research material developed on which it can be built on. Exploratory research usually builds on secondary research which was the approach taken in this paper such as reviewing previous research done in the field, conducting formal and informal discussions with experts and executives in the field, in-depth interviews, conduction surveys and case studies or pilot studies (Ryerson, 2007). This variety in research methods used enables obtaining a richer insight in reality (Mingers ,2001).

Chapter 4- Pilot interview with Educational decision makers and Experts:

This chapter starts describes the data collection methods in details, hence it starts with the first method which was conducting pilot interviews with Educational experts and decision makers from ADEC, KHDA, and the MOE. The purpose of these interviews which targeted 5 experts was to gain adequate knowledge and understanding regarding the current educational context, and the level of IT awareness in it. Moreover, it also helped in highlighting critical information such as the inhibitors, enables and drivers to effective ITG in the for-profit private schools in the UAE. This information was required to be used along with literature in creating the main survey.

Chapter 5- The Main Benchmarking Survey

Chapter 5 includes the data collection method for the main survey, the data analysis and discussion of the collected data. The main survey is the main data collection method for this research with targeted for-profit private schools in the UAE. Thorough analysis and discussion of the findings of this data is found in this chapter. The analysis consist of four main categories which are the management's awareness, commitment and support to ITG, the status of ITG in schools, the factors affecting ITG effectiveness and the perceived value created by IT as perceived by school principals.

Chapter 6- Case Studies

This chapter is devoted for exploring five for-profit private schools extensively in terms of their ITG practices and implementations. The schools have been randomly selected to be two with high ITG maturity levels, one moderate, and two with low ITG maturity levels. Deep investigation and insights of the reasons why the schools attained these levels of maturity, along with thorough discussions on the enablers, inhibitors, drivers and perceived IT value of these selected schools that give a rich understanding of details not relevant in the main survey.

Chapter 7 – Results and Conclusions:

The last chapter represents the Results recommendations and findings of the study based on literature review, initial interviews, survey analysis, and case study analysis. The recommendation section documents significant findings of the current ITG context and how it can be improved. Moreover, this section also comes across the research limitations and shortcomings. Future research areas are also suggested here.

Chapter 2: Literature Review:

A thorough critical literature review will be covered in this chapter to build a solid understanding regarding the main domains explored in this paper. In addition, its purpose is to help in building an understanding of the best practices implemented worldwide in a variety of context. This will help to build a realization of how these findings can be employed in the for profit private educational sector. Nevertheless, it also covers the best frameworks used internationally which are analyzed to see how applicable they would be to the current context of for profit private schools in the UAE.

2.1 Enterprise Governance.

Enterprises exist to deliver value to their stakeholders. This value delivery is achieved via the operation in an acceptable level of risk which is somehow healthy and advantageous in gaining organizational intended goals using properly allocated resources. These organizations need to be adaptive and quick responders to encountered challenges and to be ready to face uncertainty to maintain a sustainable competitive position in the market they are competing in. Therefore, organizations must be aware of their stakeholder demands, decision-making accountability, hence, flagging the need for governance to come into play.

2.1.1 A brief history on the urgency for CG nowadays.

Recent Acts and splurge in corporate governance has veered from its old traditional way of operating corporations. The old principle-agent theory has changed, as firm's behavior is no longer viewed as a black-production box that gets its required inputs going through the box, to produce maximized profits. All decisions and directions in any enterprise was the diligence of the CEO, and were totally dependent on his/her perceived experience in managing the organizations performance to achieve the intended goals.

Literature reveals that this approach to corporate governance, back dates to Ronald Coase's seminal work in 1937 as cited by (Corporate governance, 2006b) where he emphasized the importance of authority and direction that characterized the boundaries of the firm, his research has revolutionized the way firm behavior is perceived. Strengthening Coase's findings, Alchian and Demsetz (1972) viewed the firm as a web of contractual

relations as he argued that contractual obligations are the best way to monitor team production and hold them accountable for any decisions made (Corporate Governance, 2006b). Rapidly many other developments of agent-theoretical models followed such as Jensen and Meckling's (1976), where their seminal article titled "Theory of the firm: Managerial behavior, agency costs and ownership structure" focused on the necessity to consider the behavior motivations of individuals who run corporations (Corporate Governance, 2006b).

However, Berle & Means (1932), have put the corner stone's for corporate governance as perceived today, as they observed in the 30's of the nineteenth century that there was a need to separate control and ownership in rapid growing organizations. Berle & Mean's arguments regarding the separation of corporate control from ownership led to a new understanding of the theory of enterprises in terms of behavioral dimensions of enterprises hence, leading to the foundation of the basis of modern corporate governance.

Moreover according to Berle & Means (1932), the modern ruckus of insider trading, executive compensations, managerial expropriation of shareholder's wealth, false reporting, non-disclosure of certain accounting and governance practices, self-dealing, financial fraud and scandals, centralized-one person-agent risks are all considered native to the current corporate status (Corporate governance, 2006). These factors are assumed to be related to the theory of separating ownership and control modeled by Berle and Means as agreed by many researchers in the field.

Therefore, after these large-scale accounting frauds, many companies realized the need for some corporate regulations to be put in place to help in clarifying, and effectively monitoring the roles and responsibilities of management, stakeholders, and employees. These changes can only be achieved via the improvement of corporate governance practices by setting rigorous governance over companies' systems of internal control (Brown & Caylor, 2004). Rapidly, legislations and Acts have emerged to address these needs. Such worldwide regulations included the Cadbury Report (1992), which set the codes of practice that companies should adhere to.

Having a clear understanding of the urgency and need for the formation and implementation of good Corporate Governance as in international demand, the real meaning of Corporate governance as it occurs in literature is covered in the next section.

This helps in understanding the importance of CG for organizations, also in realizing how it can help to overcome organizational challenges to reach competitive advantage if implemented effectively and efficiently.

2.1.2 Definition of Corporate Governance:

Corporate governance is concerned with the ways in which agents of the company can be held to account for the attainment of organizational goals, while achieving goals more effectively and efficiently (Child & Rodrigues, 2003). In their definition, it is observed that Child and Rodrigues call for freeing organizations from traditional forms of CG that are in the form of rigid hierarchy and bureaucracy. New CG forms should have more co-opting of employees, junior partners, and stakeholders into the ownership and governance of the organizations, more inclusive forms of control, mutual monitoring, and promotion of trust. Managers should serve in favor of the stakeholders' interest more than relying on their own perceptions. The main idea was to move the control process from being top-down hierarchy based to a more collective form.

Tricker (1994) argues that governance is not about power but about decision-making processes. Therefore, focus is shifted away from the form of governance into the processes used in making decisions; this shifts the board from a monitoring role into an activist role. Xavier (2000) defines CG to be a tool that will help to overcome problems that result from corporations run by professional managers not considering investors' interests. Moreover, Shleifer & Vishny (1997) as cited by (Lee, et.al. 2008) claim that CG is a method that ensures that investors preserve their rights of a profit for funds they have invested. CG therefore, helps in building the best corporate structure that ensures a system of supervision leading to maximized management accountability and performance.

Corporate governance is a very general phrase, denoting, as the Cadbury Report (1992), says "the system by which companies are directed and controlled." It is concerned with structures and the allocation of authorities and responsibilities within organizations (Corporate governance, 2007).

Moreover, discussions on corporate governance have basically concentrated on the relationships between the directors and managers of the corporations and other parties as seen in the exploited literature review in the previous section. Demsdale & Prevezer (1994) denoted that: "Corporate governance is concerned with the way in which corporations are

governed- and in particular in the UK- the relationship between the management of the company and its shareholders”.

The OECD (1999) broadens the network of relationships while again emphasizing on the relationships between directors and stakeholders as they define corporate governance to be “A set of relationships between a company’s management, its boards, its shareholders, and other stakeholders. Corporate governance also provides the structures through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined. Good corporate governance should provide proper incentives for the board and management to pursue objectives that are in the interests of the company and shareholders and should facilitate effective monitoring, thereby encouraging firms to use resources more efficiently”. From the OECD’s perception, we find that it assumes that the corporation serves purely as a wealth source for all concerned parties. Moreover, its shareholders interests and rights are clearly defined, and considered. These rights are established by law and work toward the wealth and sustainability of financially sound enterprises (Corporate governance, 2007).

The ITG organization in its 2010 review have issued a very well high level definition of Corporate governance in an attempt to remove any confusion or ambiguity on CG aspects associated with focus on particular views or types aiming to draw a general definition that encamps all CG views and types. The definition was set to ensure better understanding of ITG that works under the umbrella of the broader CG of an organization. Therefore, the ITGIs definition of Corporate Governance is stated as : *“A governance system is all the means and mechanisms that will enable multiple stakeholders at various levels of an entity for specific purposes to have an organized say in setting direction and monitoring compliance and performance so as to create for them acceptable value, while taking acceptable risk levels and using limited resources responsibly”*. In the definition, the enablers of governance are “framework, principles, structure, processes and practices”; the activities are “set direction and monitor compliance and performance.”(ITGI Review, 2010).

By going over the ITGIs definition, it is clear that it is a very well defined definition as it has came across all types and views of CG.

By Analyzing all the definitions above, we find that all definitions agree on the fact that CG is about facilitating sharing ownership influence and its affect on the enterprises decisions. Moreover, it calls for good monitoring and auditing of the managements activities and performance that should be driven from the interests of stakeholders.

This governance process is clearly a framework which mangers work within to achieve the well-defined objectives and goals. Governance calls for accountability by granting decision-making rights whilst commensuration authorities and obligations. Governance also requires transparency and fairness, as a consequence of this good practice; it will have influence on organizational behaviors and culture. In addition governance is about What, Who, and How, what decisions need to be made; who makes them; and how they are to be made and how to determine that they are properly implemented. Good Governance therefore, determines the way authorities' powers will be directed to best reach organizational objectives using ultimate resources within acceptable risks for social and economic development, while meeting the needs of relevant stakeholders.

2.1.3 Objectives of having Effective and efficient Corporate governance.

Understanding the objectives of Corporate governance helps building a realization of why are things done the way they are done in organizations. Enterprises exist to deliver value to their stakeholders. This value delivery is achieved by operating in a proper atmosphere that has control over risks while using scares' resources responsibly. Having an effective and efficient CG system in place helps in preparing organizations to face uncertainty, changing environments, speeding up their ability to set direction and react positively to such circumstances. This is achieved, via sharing the decision-making accountabilities to achieve the desired outcomes both at the enterprise levels and within each level of the enterprise. Some objectives of implementing effective and efficient corporate governance in enterprise are thoroughly discussed in Appendix (A) of this paper.

Many researchers have studies the co-relationship between CG and Profitability. They suggested that the effective formulation of CG positively impacts shareholder's wealth (Brown & Caylor, 2004, Lee et. al., 2008). Gompers et.al (2003) as cited by (Lee et. al., 2008), show that firms with good CG and strong shareholder rights yielded annual returns on average 8.5% greater than those with weak rights.

Therefore, it is evident from the previous literature review that effective CG has the capability to augment firm performance alongside having become inevitable in modern organizational structure formulations to meet the increased levels of globalization and international investment demands.

2.2 IT Governance

According to Luftman (2000), in recent years, a great deal of research and analytical studies have concentrated on the interrelationship between business and IT (Luftman et.al ,1995; Luftman & Brier,1999; Luftman, 1996; Earl, 1993; Henderson et., 1992). Others concentrated on the role of the alignment and partnerships between IT and business management (Keen, 1996, Ives et.al., 1993), and the need to realize the business strategy transformation resulting from value creation of IT (Davidson, 1996; Boynton et.al. 1996). In the era of global economy, ever-changing enterprise risks and given IT's potential contributions to business success, makes it apparent that Information Technology Governance (ITG) should be considered an integral part of enterprise governance. It should provide direction and control in ensuring that the significant investments in IT bring value to the organizations while exposing organizations to minimum risk as possible. ITG has been identified as the number two technology issue in 2008's top ten-technology initiatives list published by the American Institute of Certified Public Accountants (AICPA,2008) and the number three issue in 2010 after computer security and data security(AICPA,2010).

Increasingly, top management are realizing the significance implementations of IT on their organizations. This includes the way IT is being leveraged to achieve competitive advantage, and at the same time mitigating risks associated with IT. Nowadays, boards should ascertain that their IT capabilities and governance ensures that the enterprises' IT sustains and extends the enterprises' strategies and objectives. Hence, they should insist on the fact that IT should be an integral part of the overall enterprise governance. The pervasive use of technology has created a critical dependency on IT that calls for special focus on ITG.

IT is integrated in daily aspects such as managing transactions providing essential information and knowledge required in decision making and sustaining economical and social activities. Moreover, in some enterprises it even became a vital part of the business

and a fundamental partner in supporting business expansion and growth. Therefore boards need to have a sound understanding of the potentials of IT to their organizations if managed effectively and efficiently as well as managing risk successfully.

2.2.1 Definitions of IT Governance.

According to Lee et. al. (2008), in the early 1990's the term, ITG did not gain a strong existence or occurrence in academic research domains until the work of Brown (1997) and Sambamurthy & Zmud(1999) made a difference.

Kakabadse and Kakabadse (2001) in their definition of ITG concentrated on both the structures and mechanisms of ITG not considering accountability of executives. They perceive ITG as "IS/ITG concentrates on the structure of relationships and processes developing, directing and controlling IS/IT resources in order to achieve enterprise goals through value adding contributions, which balance risk and return over IS/IT resources and its processes. Whereas, Weill & Woodham (2002) denote that ITG encourages desirable behavior in the use of IT through specifying the decision rights and accountability frameworks. Here the researchers move into a more managerial perspective, moving ITG to a higher level of accountability and decision right authorities. More delegation and accountability took place in coming years as it has been viewed as a very imperative pillar in achieving effective ITG. This is very clearly stated in the definition of the ITG by the ITGI organization (2003) as ITG being "the responsibility of Executives and the Board of directors, consisting of the leadership, organizational structures, and processes that ensures that the enterprise's IT sustains and extends the organizations' stagey and objectives". Nevertheless, Peterson (2004a) emphasized the importance of stakeholder involvement in addition to accountability as he connotes that ITG "describes the distribution of IT decision-making rights and responsibilities among different stakeholders in the enterprise, and defines the procedures and mechanisms for making and monitoring strategic IT decisions". However, Van Grembergen et. al. (2004) , argues that ITG is "the organizational capacity exercised by the board, executive management, and IT management to control the formulation and implementation of IT strategy and in this way, ensure the fusion of business and IT". In their definition- Van Grembergen et. al. (2004), they have introduced distributing delegations and responsibilities of ITG among different levels of management ensuring that IT mangers are part of the decision-making committee

which helps in bridging the gap between business and IT. As ITG gained more importance, it has been seen as an essential element in decision making on all strategic levels of the enterprise. This is clearly declared in the ITG definition of both Simonsson and Johnson (2006) as cited by (Lee et.al, 2008) where they see that ITG “basically involves IT decision-making, comprising preparation for making and implanting decisions regarding: goals, processes, people and technology on tactical and strategic levels”. The most common widely adapted conceptual model used as an ITG framework is the one developed by Webb, et. al (2006). In this model, they have defined ITG to be “ITG is the strategic alignment of IT with business such that maximum business value is achieved through the development and maintenance of effective IT control and accountability, performance management and risk management”. In their definition (Webb, et. al.,2006), they have described five areas of ITG: (i) strategic alignment, (ii) delivering business value via IT, (iii) performance management, (iv) risk management, and (v) control and accountability. This conceptual model has then been used and adapted by the ITGI institution as a framework for ITG.

By considering all the previous definitions of ITG, it can be concluded that ITG is a very essential entity in today’s overall Enterprise Governance. ITG helps Executives to control the massive IT investments and ensure that IT strategy and business strategy are well aligned. Moreover, Executives need ITG to ensure IT is delivering value to their business. Thus, Executives are held accountable for ensuring that IT decisions work in favor to the business, while minimizing IT related risks and maximizing value creation. No more is IT only existence at operational and functional level in enterprises, it is now part of the overall Enterprise Governance that needs to be considered of utmost importance at Executives level, where it could bring business opportunities or new threats to the business depending on how well it is governed.

ITG matters in all stages of delivering company’s strategy from planning to maintenance phase. Therefore, it can be concluded that ITG is a subset of overall Enterprise Governance, as it is determined, directed and regulated by the companies governance board to serve the company’s overall strategy (Van Grembergen et.al.,2004, Lee et. al., 2008) . IT should not be considered an individual assets and resource in the financial legends and hence, it should be viewed using a holistic view similarly, to how financial resources are viewed. Furthermore, the successful deployment of IT resources has

the potential to improve business resources and ROI (Lee et. al., 2008). Since IT has a crucial impact on organizations performance and generates real business benefits, such as good reputation, trust, reachable, better communication, more transparency, accessibility, reliability, product leadership, innovation, cost saving, economies of scale, all of which increases stakeholder value (Lee et. al., 2008; ITGI, 2010).

2.2.2 Objectives of Implementing ITG in organizations:

Due to the many multifunction's and failures caused by inefficient IT implementations, and to the growing dependency of organizations on IT; IT has been considered a business partner rather than being a supporter. Moreover, it is considered a key driver to economical wealth in the 21st century, in addition to being critical factor of the enterprises' success where it provides opportunities to obtain competitive advantage and extend business to explore new horizons. Furthermore, IT offers means of increasing productivity while reducing costs. One of the universal business competencies these days is to leverage IT successfully to transform the enterprise and create value throughout it. This is due to the potential capabilities of IT to manage enterprises' resources, deal with suppliers, meet stakeholders and shareholders needs, satisfy customers, and enable increasingly global and dematerialized translations. Adding to that, IT is being a key for knowledge sharing and growing the innovation era of the business. Any unwillingness to innovate limits the ability of attaining future goals and long term sustainability (King,1995; Luftman, 1996; Earl 1996; Luftman et. al. 1993; Goof, 1993; Liebs, 1992; Robson 1994; Luftman et.al., 1999; Luftman & Brier, 1999; Luftman, 2000; ITGI,2009; ISACA, 2010).

The overall objectives of ITG is to create a realization of the strategic importance of IT to allow enterprises to sustain its operations and implement proper strategies required to expand activities into the future while remaining on the competitive edge. ITG aims to ensuring that expectations for IT are met and IT Risks are dealt with properly.

ITG helps in understanding the issues and strategic importance of IT that help to ensure that enterprises can sustain operations while also ascertaining the organizational ability to implement strategies required to extend its activities into the future not only to survive but to thrive. Likewise, ITG also aims at ensuring that expectations for IT are met and its performance is measured, resources are managed and risks are well controlled (ITGI,2001).

Other researchers considered ITG to be an extension of CG, that ensures that automated systems contribute to business goals effectively. While also ensuring that IT related risks are identified and managed (mitigated, transferred or accepted), and that automated information systems (including financial reporting and audit systems) are transparent and provide the 'true picture' of the operation and function of the business. Changes in legislation and conformance requirements mean that IT governance is, or will be shortly, a pressing concern in many companies dependent on IT (Chapter 5,2005).

The successful deployment of IT resources has proven to have potential improvement to business processes and to help in improving overall business performance return on investment (ROI)|(Lee et. al., 2008) , "Companies with better than average IT governance earn at least a 20 percent higher return on assets than organizations with weaker governance" (Weill & Ross, 2004). In a survey conducted by the ITGI (2009), it was found that three-quarters of the respondents agreed that their investments in IT have generated value for the enterprise.

Since IT is such a critical factor in enabling and supporting business to reach its goals, effective ITG generates real business benefits, such as enhancing reputation, building trust of all stakeholders, ensuring product differentiation and leadership, cost reduction, increases stakeholder value of the firm (ITGI,2001; Lee et.al., 2008; ITGI, 2010)

Some new objectives expected from effectual implementation of ITG due to the dynamic changing requirements of the recent economical era, is the enterprises higher expectations of IT to deliver business value such as providing fast, secure, high-quality solutions and services, generate reasonable ROI, move from productivity and efficiency to value creation and business effectiveness(ISACA, 2009; ITGI,2010). From this view, it is apparent that the enterprises reliance on IT has grown and the need for ITG is no longer an option but is a must to sustain a competitive position in today's challenging economical situation.

Recently, IT risks are more important to be considered than before, that is because, many businesses went "global" and any failure in the IT systems or server down times, can cost an organization a fortune or even to lose opportunities or stakeholders' trust, hence, such malfunctions have become far more costly than before. For many Organizations IT is a supporting resource for attaining competitive advantage and ensuring differentiation, while for others it is a mean of survival not only prosperity. Nevertheless, the recent

networked economy has also made the management of IT mandatory and more requirements are expected of it to be efficient, effective, and transparent. These new dimensions brought more efficient markets, diversification, enabled streamlining of processes, and supply chains therefore, creating more technology and business risks in addition to new information management and governance requirements.

Another major objective of implementing ITG is the need to ensure that IT solutions are delivered on time, budget and within the defined scope by exploiting IT to deliver and add value to business.

By reviewing the literature, it is found that all above discussed aspects are centered around five main focus areas as defined by the (ITGI,2001; ISACA, 2009; ITGI,2010), three of which are drivers (Alignment, Resource Management, Performance Measurements) and two of which are outcomes: (Value delivery and Risk management), where all are driven by stakeholder value (Figure 1). All previous discussed objectives can be categorized under these broad dimensions of ITG where they lead to ensuring IT partnership with business in sustaining and attaining business goals.

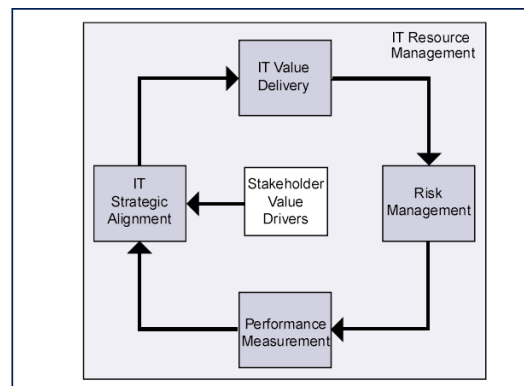


Figure 1: Depicts the ITG dimensions (ITGI,2001)

In the following subsections, a brief description will be given to each of the five ITG dimensions.

2.2.3 ITG Dimensions

2.2.3.1. IT Strategic Alignment.

This dimension focuses on aligning IT with the business and collaborative solutions, to ensure enterprises' investments in IT is in harmony with its strategic objectives. IT alignment is about aligning IT operations with the current enterprise operations, it is also

considered to be the strategic integration of proposed IT organization and the proposed future enterprise organization (ISACA, 2009; ITGI,2010). Luftman (2000) defined Business-IT alignment as “applying IT in an appropriate and timely way, in harmony with business strategies, goals and needs”.

Alignment’s importance has been realized since the late 1970’s (McLean & Soden, 1977; IBM, 1981; Mills, 1986; Parker & Benson, 1988; Brancheue & Whethrbe 1987; Dixon & Little, 1989; Niederman et. al., 1991; Chan & Huff, 1993; Henderson & Venkatraman 1996; Luftman & Brier, 1999; Luftman, 2000; ITGI, 2000; ISACA,2009). Over the years, it has been among the top-ranking concerns of business executives (Luftman,2000). Alignment is growing in its importance day after day, due to efforts companies put in linking technology to business strategies in an attempt to meet the requirements of dynamic business strategies and rapid emerging technologies. Moreover, alignment addresses both doing the right things(effectiveness), and doing things right (efficiency) (Papp, 1995; Luftman, 1996, Luftman & Brier, 1999; Luftman, 2000). Therefore, it is obvious that IT alignment is the most important aspect of ITG and the major pillar as it helps the organization to create and add value to products and services, assists it in achieving competitive advantage, contains cost and improves administrative efficiency in addition to increasing managerial effectiveness.

The awareness of Executives regarding the strategic importance of IT and its contribution in delivering business strategy has increased nowadays, as more than one-half of the participants in the (ITGI,2009) survey considered IT very important to the enterprise’s ability to achieve its strategy or vision. An additional one-third noted a somewhat important” contribution from IT towards strategy realization. The results reveal that ITG is rapidly finding its way through in being a priority on Boards’ business agendas more than any time in the past. (See figure 2 for an illustration on alignment activities)

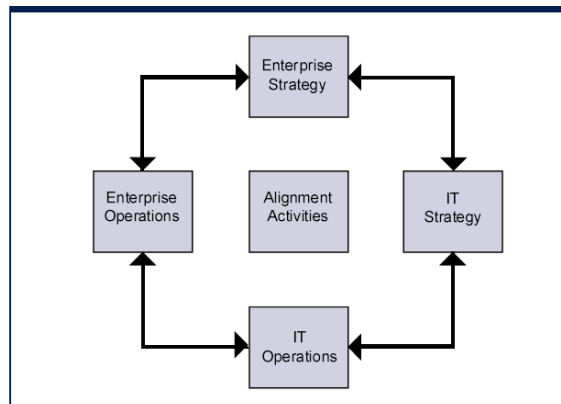
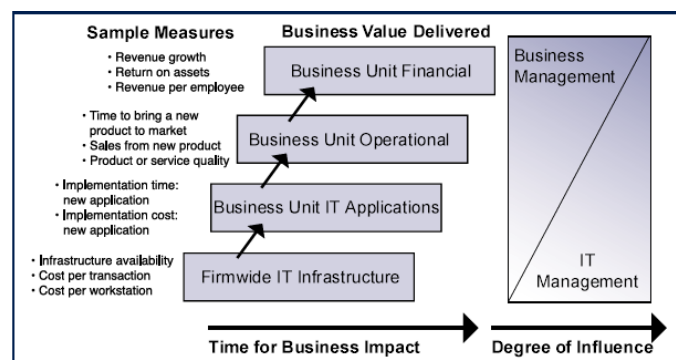


Figure 2: Depicts the alignment activities of Business and IT. (ITGI, 2001)

2.2.3.2. Value Delivery:

The focus of this ITG dimension is on optimizing expenses and providing the value of IT. This basically concentrates on delivering projects and series on time, within budget and scope, while maintaining high quality and ensuring value delivery to achieve promised benefits.

IT delivered value is not easy to measure, as there is some uncertainty of the outcomes of massive investments of IT, therefore to achieve effective value delivery, both costs and ROI should be balanced properly. Value creation should not only focus on measurements based on value realization such as financial measures, but also on enterprise performance. According to Weill & Ross (2004) and ISACA (2009), value delivery of IT can be realized in all units of the business. They have concluded that measuring the impact of IT at the bottom of the hierarchy is easier than at higher levels (Weill & Ross, 2004; ISACA, 2009). Their findings also declared different measurements of value for each level which is illustrated in the figure(3).



⁷ Weill, Peter; Marianne Broadbent; *Leveraging the New Infrastructure: How Market Leaders Capitalize on Information Technology*, Harvard Business School Press, 1998

Figure 3 : Views of IT value depicted from (Weill and Broadbent, 1998).

Value is also perceived as a result of effective organization alignment that allows the expansion of organizations to target new markets, increase ROI, increase customer satisfaction, and create more potential retaining customers all of what would lead to competitive advantage.

Nevertheless, financial measures nowadays are inadequate in the new economical information era where companies need to create future value by making efforts in creating sustainable investments through investing in their customers, shareholders, stakeholders, suppliers, technology assets and their enterprise innovation.

To be successful, enterprises need to realize that different value indicators are required for different strategic settings. This means that it is important to establish the value measures in concert between the business and IT (ISACA, 2009; ITGI,2010), such assumption is true in the cases of businesses that deliver services such as educational institutes, health centers and so. In such cases value can be perceived basically as the effectiveness of IT delivering benefits, making tasks easier, allowing knowledge sharing, reducing turnover rates, customer satisfaction, reduction of complaints, increment in admissions, stakeholder satisfaction, reduced risks, conformance to regulations which are just a little to mention, in addition to the financial intended values.

2.2.3.3. Risk Management

The Risk Management dimension of ITG ensures safeguarding IT assets and disaster recovery. Risk management is very essential to demonstrate good CG to stakeholders and customers to gain their trust and polarize investments and to obtain financial funding from banks, investors, and venture capitalists. Enterprises are surrounded with many risks other than financial risks such as operational and systematic risks including technology and information security risks, these risks are considered prominent, where other risks might also occur.

George Westerman and Richard Hunter (2007), in their book “IT Risk, Turning Business Threats into Competitive Advantage” ,argue that” IT risk is not based on specific volumes of transactions, dollars, or events. Instead, IT risk is purely based on the strategic goals of the enterprise”.

Senior management should be aware of such risks and should be able to manage these risks by ascertaining transparency regarding the significant risks to the enterprise

and clarifying how they are managed and mitigated. The board should be fully responsible for risk management; delegations should be communicated, announced, and clearly understood if required (ISACA, 2009; ITGI,2010). Management should also ensure that risk management plans have the capacity to generate cost efficiency and provide the organization with a chance to take business opportunities that might not be available without this level of surrounding risks, therefore cost/risk and benefits should be balanced properly. Mir & Nicholson (2004) denote that “the strategic and financial risks in undertaking major transactions can be reduced to a significant extent by disciplined processes and planning”.

As a minimum, risks should at least be realized and understood even if no direct action is taken. The awareness of risks will influence strategic decisions for the best, “Most damaging IT risks are these that are not well understood” (ISACA, 2009; ITGI,2010), “I cannot imagine any condition which could cause this ship to founder. I can’t conceive of any vital disaster happening to this vessel” (Captain of the titanic, 1912).

2.2.3.4. Resource Management:

To achieve the proposed goals from IT performance, good resource management is required; this includes proper investments, allocation and use of IT resources including (people, applications, technology, facilities, data, information and infrastructure) that all serve the overall enterprise needs. IT resource management is responsible for the management of IT resources and the organization of IT infrastructures within an enterprise. Moreover, according to Hardy (2003), it is also essential to provide a high level direction for the sourcing and using of IT resources to oversee the aggregate funding of IT at the enterprise level and to ensure that there is adequate IT capability and infrastructure to support current and expected future business requirements. Broadbent (2003), Buckby et. al., (2005) argue that ITG is about assigning decision rights and accountabilities on how ITG resources should be managed, who has influence on these decisions and who controls the decision making process.

Another important aspect that is considered a fundamental aspect of this dimension of ITG research is the issue of project management (Buckby et. al., 2005; Sharma et. al., 2009). Managing new IT projects consumes scars organizational resources and has

significant impact on the financial status and strategic context of the enterprise; therefore, they need to be managed effectively and efficiently.

With the large percentage of projects currently reported as being over budget or out of control, ITG has become a main concern for many Executives (Trites, 2003, Buckby et.al. , 2005). Organizations need to maximize the efficiency of these IT resources while cutting off cost as much as possible considering a well-balanced cost-benefit equation. Another challenge nowadays, is the outsourcing of IT projects and services; this needs well management to ensure that the enterprise is aware of where and how to outsource and how to manage the outsourced services in a way that delivers the values promised at an acceptable cost (ISACA, 2009; ITGI, 2010). Through good ITG, organizations should align and prioritize the IT services that are mostly beneficial in attaining and supporting business needs and goals via setting clear service definitions, along with proper performance measures. This forms the basis for effective oversight and monitoring of both internal and outsourced IT services. If this is achieved, organizations realize great cost saving; in addition, they are ready to take the next new IT initiative by introducing new technology and updating or discarding obsolete systems.

Another challenge facing organizations regarding resource management is human resources availability and appropriateness, which are a great challenge in ensuring effective ITG. By considering the results of the (ITGI,2009) survey, 26% of the executives find that there is a “lack of skills” or “a lack of training” in regards to ITG aspects.

Executives need to ensure that effective recruitment retention and training agendas are in place that will ensure the organization has the proper skills to utilize IT effectively in an attempt to reach the organizations perceived objectives (ISACA, 2009).

Due to the rapid changing nature of IT assets, it is very sophisticated to manage IT assets within a changing business atmosphere; therefore, good ITG practices are required to well manage these assets which are considered CSFs for optimizing IT cost base, managing change, minimizing service incidents, and ensuring quality delivery. Control and awareness of IT resource management allows the Board to have a better understanding of the issues associated with managing new and existing IT resources and to determine the ITG processes needed to overcome these problems. Moreover, via good ITG implementations, companies should strive to balance the cost of infrastructure assets with quality services required to attain and deliver value as proposed.

2.2.3.5. Performance Measurements

The fifth ITG dimension is responsible for tracking the performance delivery and quality of deliverables as outcomes of IT projects or services.

Competing in an information-based global economy has taken a new era, as value creation has shifted from tangible to intangible assets which are difficult to measure using traditional financial means.

Kaplan & Norton (1996) concluded that, one method to overcome the conventional methods of accounting is by measuring the relationships and knowledge based assets in addition to translating strategy into action to achieve goals. This can be achieved by using balanced score cards as a performance measure which is necessary to compete in the information age, hence it concentrates on customer focus, process efficiency and enterprise innovation, in addition to financial aspects. These four main areas of performance indicators are briefly described (Kaplan & Norton, 1996, ITGI, 2010):

Financial Perspective: Concentrates on customer and stakeholder value and satisfaction, while considering the financial objectives needed to be accomplished.

Customer Perspective: Concentrates on realizing and meeting customer needs that must be served to achieve the proposed financial objectives.

Internal Process perspective: Decides on best internal business processes an organization needs to exploit to achieve customer and stakeholder satisfaction.

Learning and Innovation perspective: The required organizational innovation that will help the organization to learn and grow to achieve its goals.

According to the ISACA (2009) and ITGI (2010) using the Balanced Scorecard allows managers to consider organizational performance indications to exceed short-term financial measurements by considering more intangible items such as satisfying customers and meeting their needs, controlling internal processes, creating efficient operational and functional tasks and processes, developing staff skills and competencies. By maintaining this holistic view, organizations can endure linking long-term strategic goals with short term actions. Information management lies at the heart of scorecards; it can be argued that IT contributes more than just supporting the enterprise's current position and directing where it is going. IT enables supports and sustains financial goals (enterprise resource management), customers (customer relationship management), processes

(intranet, workflow tools, databases, and inquiry systems), learning, and innovation (knowledge management and sharing, data mining, data accessibility, Database inventories, expert systems, decision support systems). This interrelationship can be demonstrated in figure (4) which illustrates the areas of integration of IT into balanced scorecards from a business perspective:

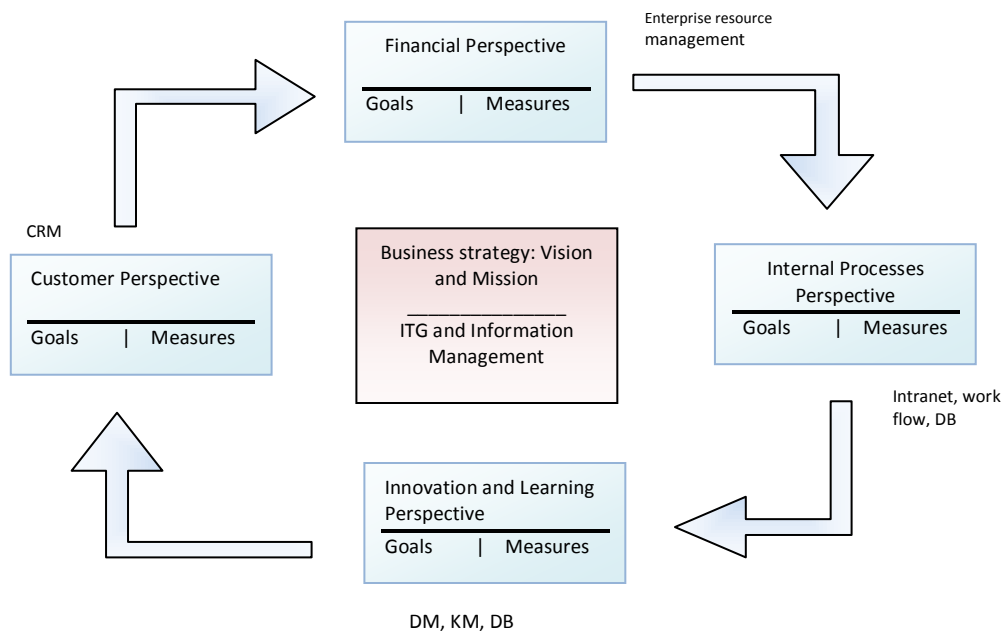


Figure 4 : A balanced Score card showing the relation of Business and IT integration.

In addition to IT's contribution of information to the overall Business Balance Scorecard, it needs an IT score card of its own due to its criticality and importance while being complex in nature. An adapted BSC forming an IT Balance Scorecard (IT BSC) can be used in achieving IT and Business alignment. The objective is to bridge the reporting systems between management and the board to reach a consensus among stakeholders regarding IT strategic decisions in an attempt to create value, increase IT performance, management roles and create new capabilities therefore creating more value out of IT. (ISACA, 2009; ITGI, 2010). The IT BSC has been modified from the original BSC to encompass IT's characteristics, therefore the 4 dimensions are modified as:

- **Enterprise Contributions:** To ensure effective ITG
- **Future Orientation:** Build basis for future development, continuous learning, and growth.
- **Operational Excellence:** Performing IT functions with increasing credibility and impact.

- **Customer Orientation:** Meeting customers' needs and measuring up to business expectations.

While ITBSC is used to demonstrate the value of IT delivered to business, another difference between an overall BSC and ITBSC is noticeable, which is that the ITBSC applies as a cause and effect relationship between different scorecard items, as one SC entity is a cause for the effects (outcomes) of the other as illustrated in figure(5).

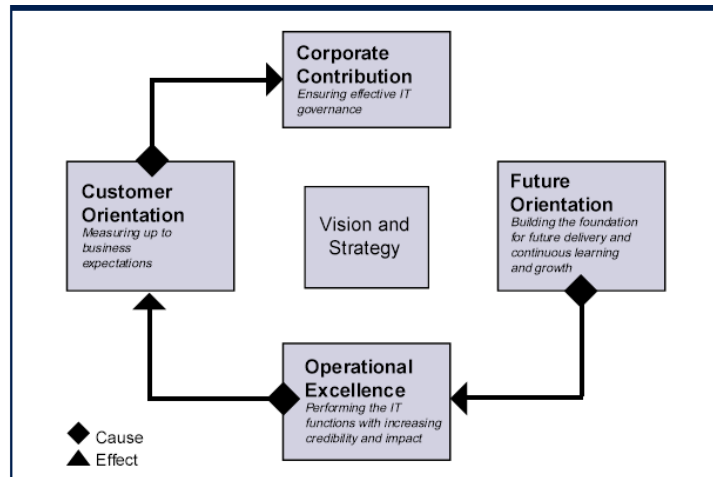


Figure 5: Depicts the cause and effect relationship between ITBSC dimensions. (adapted from (ITGI, 2010))

Outcomes of good IT need to also measure the other elements of ITG such as alignment of IT and Business objectives, cost efficiencies realized by IT, capabilities, and competences generated, risks managed, and opportunities created. Examples of such outcomes as addressed by (ISACA, 2009; ITGI, 2010):

- Enhanced performance and cost management.
- Measurable contribution from IT to fast introduction of innovative products and services.
- Actual availability of systems, services, and increasing level service delivery.
- Absence of integrity and confidentiality of risks.

According to the Survey conducted by the ITGI in 2009 which included 255 Non IT executives, the responds to a question regarding how they perceive the performance of IT in their enterprises, showed that the vast majority of responses (58%) believe that “ IT performs in line with our expectations”, whereas, only (2%) believe that “ IT significantly

outperforms our expectations”. It is expected to have a higher percentage in regards of organizational expectation of IT performance. This shows that, IT performance still doesn’t reflect the IT investments made, or perhaps the reason for such percentage might be the barriers encountered in implementing effective ITG or even the lack of full awareness of Executives regarding the role of ITG in creating such business value and improving organizational performance. Weill & Woodham (2002) argued that effective ITG structures could be the single most important predictor of getting value from IT.

2.2.4 ITG Enablers and Inhibitors

The implementation and effectiveness of ITG in organizations varies, this is due to the differences in the existence of enablers or inhibitors that either boost or impede the effectiveness of ITG in an organization. Researchers have defined many enablers and inhibitors to good CG and ITG. It should be mentioned that the absence of an enabler can be considered an inhibitor as viewed by many researchers (Luftman, 2000) and therefore, they show up in some studies as both enablers and inhibitors. Basically, it is realized from the literature review that the majority of enablers and inhibitors are situated around the most significant pillar of ITG, which is IT/Business strategic alignment. Luftman et. al. (2000) emphasizes that for organizations to achieve and sustain alignment, they need to consider maximizing enablers and minimizing the inhibitors that cultivate alignment. Moreover, Luftman et. al (2000) has analyzed anecdotal research describing enablers and inhibitors of strategic alignment and came up with the six most important ones as depicted in Table (1)

Table 1: Enablers and Inhibitors of Strategic Alignment (Luftman et. al. 2000)

Enablers	Inhibitors
Senior executive support for IT	IT/Business lack close relationships
IT involved in strategy development	IT does not prioritize well
IT understands the business	IT fails to meet commitments
Business- IT partnership	IT does not understand business
Well-prioritized IT projects	Senior executives do not support IT
IT demonstrates leadership	IT management lacks leadership.

It is evident that most inhibitors are due to possible social or/and managerial issues rather than technical issues. In another study conducted by Teo and Ang (1999) as cited by (Lee et.al, 2008), where they analyzed 168 firms in different sectors, the researchers found that one of the top ranking critical success factors in IT/Business alignment was the management's commitment to the strategic use and importance of IT, in addition to managers IT literacy level. These were among 18 other CSF they denoted as shown in Table (2)

Table 2: CSF in business and IT alignment, (Teo and Ang,1999)

Critical Success Factors in IT/Business alignment
1 Top management is committed to the strategic use of IT
2 IS management is knowledgeable about business
3 Top management has confidence in the IS department
4 The IS department provides efficient and reliable services to user departments
5 There is frequent communication between user and IS departments
6 The IS staff are able to keep up with advances in IT
7 Business and IS management work together in partnership in prioritizing application developments
8 Business goals and objectives are made known to IS management
9 The IS department is responsive to user needs
10 Top management is knowledgeable about IT
11 The IS department often come up with creative ideas on how to use IT strategically
12 The corporate business plan is made available to the IS department
13 There is a set of organizational goals and objectives for the IS department
14 User departments view IS staff as competent
15 The IS management actively participates in IS planning
16 Top management actively participates in IS planning
17 The planning horizons for business and IS plans are similar
18 Users actively participate in IS planning

McLeod & Smith (1996), concluded in their research that two key enablers of effective fit between ITG and business strategy are the existence of ITG training and external support. By ITG training, the author considers the training that is required to enable the assigned employees to carry out IT projects and tasks effectively. Applying the same measures, businesses should also consider the well training of dedicated staff in implementing ITG given the absence of clear guidelines or dedicated management architectures or even being new in the organization's agenda. However, using external support by hiring external experts or consultants to help customize and run in-house ITG may also help in overcoming lack of experience in ITG implementation in organizations. Nevertheless, it is essential to have a full understanding of the organization and the

business process before attempting to implement ITG to achieve strategic alignment of organizations as seen by Gottschalk (1999). He also stresses on the fact that financial resources should be adequate as an important factor for project success, in addition to the importance of well allocation of human resources, appropriate time management, and skilled and committed project champions are also essential.

Weill & Ross (2004b), define a number of factors leading to successful ITG implementations, namely the support and commitment of senior management, clear ITG principles, and disciplines, clear processes. It is suggested here, that the key factor for ITG implementation is senior management's support and stewardship. Moreover, the formulation and existence of ITG principles originated from the business strategies is also a critical factor. The authors also emphasized that in addition to the importance of having clear IT processes related to business development, it is also necessary to have IT architectural development and well management of IT service outsources, as these processes are essential to business activities. Approaching a different vision, Gerrard (2005) argues that Project Management Office (PMO) is considered a support mechanism for ITG processes that is a very important enabler for successful ITG implementation.

Letsoalo et. al. (2006), investigated enablers and inhibitors of ITG implementations concerning IT project implementations. The authors defined twelve factors namely: (1) support of senior management, (2) organizational analysis, (3) clear governance principles, (4) clear IT processes, (5) support for ITG processes, (6) ITG training, (7) financial resources, (8) adequate human resources, (9) a project champion, (10) adequate project time, (11) stakeholder involvement and (12) External support. Using the COBIT ITG framework, in running a case study on a large South African enterprise, the authors distinguished three key enablers: senior management support, project champion, and external support, and three key inhibitors: the lack of clear IT processes, inadequate assignment of human resources, and inadequate stakeholder involvement.

Guldentops et. al. (2001) came up with a self-assessment tool to benchmark IT control and governance maturity of 168 different firms both of which were public and private sectors. The authors stated that there are 15 most relevant processes considered as CSF of effective ITG implementations (See Table 3), the research also found that most firms at that time had a maturity level between 2.0 to 2.5 out of 5.

Table 3: 15 most CSF denoted by Guldentops, et. al (2001)

15 most CSF denoted by Guldentops, et. al (2001)
Define a strategic IT plan
Determine technological direction
Manage the IT investment
Assess risks
Manage projects
Identify automated solutions
Acquire and maintain application S/W
Install and accredit systems
Manage changes
Define and manage service levels
Ensure continuous service
Ensure system security
Manage problems and incidents
Manage data
Monitor the process
Prerequisites to implementing effective ITG frameworks

Based on Gulderntop's research, the researchers found that the main inhabiting forces of ITG maturity level were budget limitations, resource prioritization, resource conflicts, availability of skilled staff, management awareness, management commitment, lack of easy solutions, existing architecture, lack of ownership, the effect of external and political/economical environment, and lack of tools.

De Haes & Grembergen (2008) have also conducted an extensive study on measuring the ITG maturity level in Bulgarian financial firms, they concluded that there were 10 most important ITG practices and enablers which were, in their opinion crucial elements or a minimum baseline of an optimal ITG mix. These minimum baseline elements are shown in table (4).

Table 4: Top 10 Most Important IT Governance Practices (Minimum Baseline) adapted from (De Haes & Grembergen(2008)).

Top 10 Most Important IT Governance Practices (Minimum Baseline) adapted from (De Haes & Grembergen(2008)).
IT steering committee (IT investment evaluation / prioritization at executive / senior management level)
CIO on executive committee
Portfolio management (incl. business cases, information economics, ROI, payback)
IT budget control and reporting
IT strategy committee at level of board of directors
IT leadership
Strategic information systems planning

Top 10 Most Important IT Governance Practices (Minimum Baseline) adapted from (De Haes & Grembergen(2008)).

IT project steering committee

CIO (Chief Information Officer) reporting to CEO (Chief Executive Officer) and/or COO (Chief Operational Officer)

Project governance / management methodologies

Studies in ITG are vital, where it is considered of utmost interest to Executives nowadays, research has basically concentrated on the conceptual part of ITG and in defining frameworks, in addition to having many researchers consider the enablers and inhibitors of ITG however, they were basically focused around the strategic alignment of IT and business. The other factors were not considered deeply and there is no one standardized set of inhibitors or enablers defined yet. This might be due to the fact that inhibitors and enablers are considered variables that are dynamic and might change with the explored context in hand. One other reason is that most of the organizations are still at the early stages of reaching an acceptable ITG maturity level, therefore more devoted research is required in this field. However, PwC and ITGI have conducted two surveys regarding ITG, these surveys contained a section measuring the obstacles encountering organizations implementation of ITG. The first survey was conducted in 2007 which included 50 CIO's from around the globe. The survey included both factors that positively or negatively affected ITG. The defined obstacles of ITG implementation found by the survey are depicted in Table(5).

Table 5: Obstacles of ITG implementation, (ITGI, 2008)

Obstacles of ITG implementation	3Cs: Culture, resistant to Change, lack of appropriate Communication
	Internal politics
	Resistance to acceptance of standard/policies
	Resistance to accept accountability
	Obtaining sufficient business involvement in governance initiatives

The authors of this report then declare the CSF's that surmount these barriers. These were: (1) defining a sound set of performance indicators, (2) involving managers in IT initiatives and establishing good communication between IT and Business units, (3) driving change through strong personalities able to overcome resistance, (4) ensuring that senior management was visible behind ITG initiatives and (5) putting in place a well-defined and

strongly managed process for exceptional cases or processes (PwC & ITGI,2007). Unless these characteristics' have been interleaved and integrated into the corporate governance architecture for ITG; they can be inhibitors in the face of sustaining business needs. The survey conducted in 2007 basically targeted IT executives and CIO's which might have been subjective in describing some aspects related to ITG. Another similar survey was conducted in 2009 globally by PwC and ITGI, but this time it targeted 255 non- IT Executives to ascertain their views on ITG. While there was an agreement that IT investments have created and continue to add value, almost a half of the respondents indicated that there are barriers that tend to restrict the realization of full value from IT investments (ITGI,2009). Therefore, with the dynamic changing requirements and challenges facing business nowadays, it is logical that new barriers have emerged that might have not existed in the past regarding the implementation of ITG. This might be a factor in explain the less satisfaction of non-IT Executives with their enterprise's IT than was the case of the IT management population who participated in 2007's general survey. When comparing the results of the two surveys, it is found that Non-IT executives reveal that value provided by IT is at a lower level, indicating that IT performance is not as it should be. Moreover, the results also concluded that IT is seen as strategically important, but not to the same extent as reported by IT managers in the previous survey. Nevertheless, IT managers believe they provide the business side of the enterprise with frequent information about new technology opportunities, but the business side doesn't admit that they receive such valuable information (ITGI, 2009). By considering these obstacles, it is apparent that there is a communication gap that needs to be bridged to transfer new technology into business value. Considering the results of the latest non-IT Executive survey results, it is reported that half of the respondents believe that there are barriers that prevent their enterprise from realizing the full value of investments made in IT Figure (6) and Figure (7).

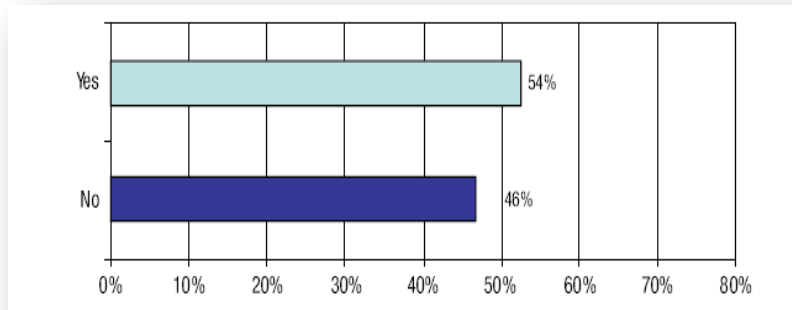


Figure 6: The existence of barriers in ITG implementation (ITGI survey results 2010)

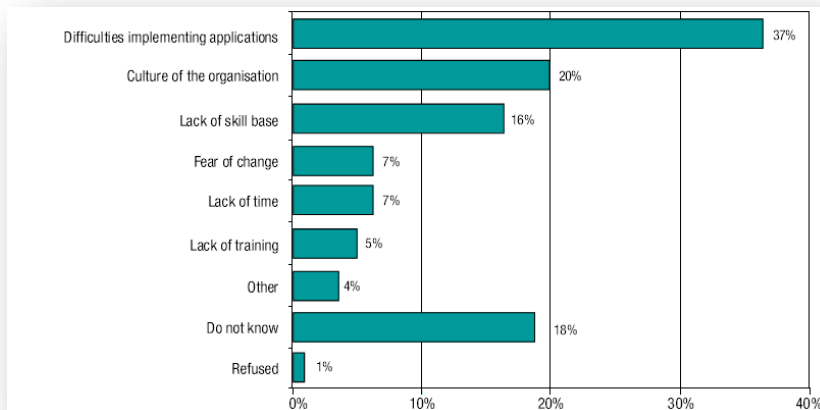


Figure 7: depicts the identified barriers by Non-IT Executives (ITGI survey results 2010)

Among the top defined barriers were the difficulty in implementing applications and the culture of the organization in perceiving the value and use of IT. Other indicated barriers were lack of skill base, fear of change, lack of time, lack of training. Thoroughly analyzing the results, it can be evident that recent barriers are more people-oriented than managerial-oriented as seen by non-IT executives in opposite to findings of Luftman et. al. (1999) regarding the barriers of strategic alignment.

In the same survey, approximately three-quarters (74%) of the respondents agree that their investments in IT have generated value for the enterprise. Having this in mind, with the results found from the barriers defined by the Non- IT- Executive population who are convinced that IT investments create value, yet they are hampered by conditions that prevent full attainment of this value. Such obstacles should be cleared out with good governance practices and by demonstrating control over several barriers through the

deployment of their authorities and responsibilities. In their positions, these executives can encourage or enforce an IT Value culture; by well communicating IT policies, having IT on their agenda's or creating a sense of value and importance of IT. Moreover, they are also responsible for the learning and knowledge mastery of basic skills in their organizations, where they should be providing proper and adequate training for their employees to surmount barriers such as "Lack of skill base", "Lack of training" and subsequently, overcome "Difficulties in implementing applications". Adding to that, with proper dedication of delegations, and tasks, well planning, well bridging of gaps between IT and business, and properly perceiving the value of IT, the organization will also manage change effectively, therefore, reducing the barrier of "fear of change".

By considering the wide variety of samples demonstrated in this literature review, different researches, different industries, and a variety of enterprises' sizes while being global; it is evident that regardless of the context, there are some common inhibitors that exist among all. These can be summarized as : management commitment and IT literacy level, lack of training and need for ITG de-skilling, the impact of organizational culture on ITG effectiveness, lack of stakeholder involvement, lack of communication, lack of clear ITG processes, inadequate support for financial resources. Moreover, one other finding is that most of literature concentrated on financial firms or different industries, it is obvious that there is very little consideration of the inhibitors of ITG implementation in an educational context. Some literature was denoted regarding higher education but no researches exist regarding the effect of ITG and its inhibitors on the private-for profit educational context which will be the scope of this paper.

2.2.5 The Relationship between Corporate Governance and ITG

IT is considered a vital part of the business nowadays, whereas, ITG is a vital part of enterprise governance. In regards to the current perception of the relationship of IT governance to enterprise governance, and according to the findings of the survey conducted by the ITGI and PwC in 2009; the results indicated that more than 79% of the participants believe that ITG is an integrated part of the overall enterprise governance arrangement. However, 27% believe that ITG is a discipline, but see it as an effort distinct from enterprise governance activities.

In order to ensure that ITG is fundamental to overall Enterprise Governance, organizations need to ensure that IT is integral to the enterprise other than being something to be regulated to a technical function; nor should it be left out till the end to be fitted into Board's decisions in isolation of actually considering it part of the solution itself. Organizations need to be aware of the criticality of IT to the enterprise and managers should formally be accountable and responsible for managing this side of the CG. Management should also be able to focus on tracking proper information and making it accessible and timely to ensure competitive advantage. Articulating a business culture that emphasizes the importance of ITG in boosting the business is also considered a CSF for effective ITG.

ITG is interleaved with all levels of the enterprise as discussed previously in this paper. ITG is implemented through the organization to support the overall enterprise governance. The ITGI defines the Enterprise's ITG to comprise of business governance of IT and functional governance of IT (ITGI,2001). Within the overall Enterprise governance of IT there is:

- Corporate governance: focusing on regulatory and legal compliance issues related to IT.
- Entity Governance: Focusing on IT function issues.
- Asset governance that focus on IT asset issues.

The three ITG views are illustrated in the following figure(8):

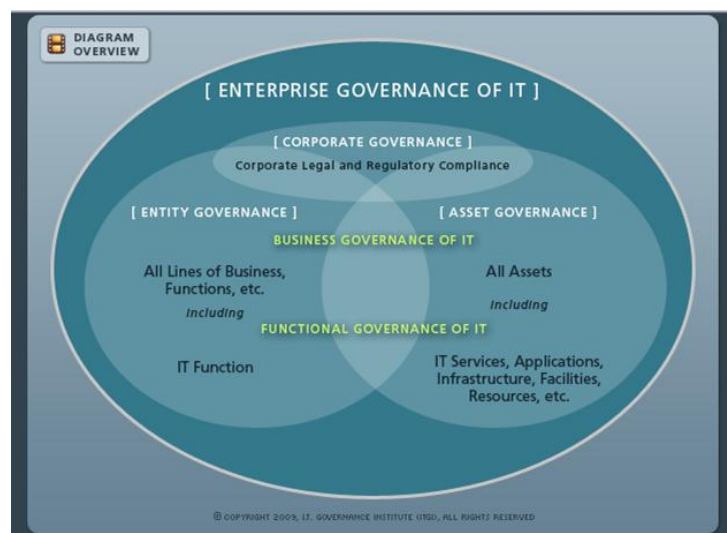


Figure 8: ITG and Enterprise governance, Adapted from the ITGI board briefing , 2010

Figure (8), clearly shows that IT is integrated into all views of the enterprise governance, starting from the higher level which is CG. The CG's view in regards of IT, constitutes any regulations, legislations that ensure the other views comply with governance issues of the overall organization. This includes regulations of IT compliance with overall corporate governance of the organization. At the second level, comes the Business governance of IT, this consists of aspects from both the entity governance- including all lines of business and functions- and the assets governance including all assets both of which ensure the alignment and support of IT with the business strategy. On the other hand, the Functional Governance of IT, consists of the IT functions existing in the entity governance view and the IT services, applications, infrastructure, facilities, resources and other IT assets that reside within the asset governance view(ITGI,2010). Encompassing all these elements is the overall ITG governance framework of the enterprise.

2.3 ITG frameworks and best practices

While most of the organizations nowadays have realized the importance of ITG more than ever before, most don't have a holistic view that considers all the dimensions of this ITG implementation. According to a study by PwC, and ITGI in 2008, "the concept of ITG as an umbrella framework has yet to emerge".

Tony Balasubramanian, a vice president with PwC's IT advisory practice quotes that "The initiatives are not considering ITG from a holistic perspective that can be used to enhance the value of IT for the organization"(CMA, 2007).

Managers should apply system thinking regarding the implementation of ITG, as ITG should be viewed holistically, not as a sum of parts as one part of the system should allow the understanding of the other parts. System Thinking as defined by Von & George (1976), as to refer to the examination of how systems interact, why do they do so & how do they work, "The whole is more than the sum of the parts". System thinking should be seen as a long-term practice that will ultimately help the organization to achieve its business goals. Most Organizational activities, functions, operations and investments are related in one way or another to IT. Unfortunately, in most cases they are viewed as silos and disconnected elements. Nevertheless, they are all interrelated activities that all lead to achieving business goals and attaining competitive advantage on the long run within a

more cost effective manner. Therefore, ITG understands IT as an element of the overall CG rather than an independent, designated, and separated asset that adds a better flavor to the results.

ITG should not be approached in a haphazard manner; IT demands careful thought and planning, in addition to proper realization on how decisions are made. To implement ITG effectively, two facets need to be considered; the integration of ITG into the organizations' CG practices that encourages and cultivates authorities and responsibilities by assigning decision rights and accountabilities to executives. The Other facet is the proper selection and use of frameworks that proved the rules and controls for good ITG implementation. At the top of these frameworks are IT principles that encapsulate the firm's future direction of how IT should be directed to create business value. Supporting these principles, the framework will help in setting the mechanisms, highlighting the required processes, and relational links that will effectively guide organizations to realize their current status and start improving to reach the proposed status of ITG effectiveness.

Organizations can come up with their own frameworks, but why revert the wheel, waste time, and resources when someone already has done the bulky work that can ease their venture into ITG by leveraging various industry-standard frameworks. Moreover, the formal frameworks in place are not just an organization's personal effort, they are a consortium of efforts by many IT and business experts employing their years of experience to produce the best practices that help others to benefit of in implementing these frameworks, which make many of them well established and embrace sound practices(ITGI,2010).

Nevertheless, these frameworks, serve as a road map or a guide with adequate templates and samples on how to leverage effective ITG in organizations. However, they are not turnkey methodologies that provide a step-to-step guide on how to interleave ITG into organizations, as a matter of fact, they provide the foundation and guidance of creating a governance structure and help to be settled where the organization is and where it attempts to be (ITGI,2010; ISACA, 2009).

Various ITG frameworks have emerged attempting to address the evolving issues related with the increased use and reliance of organizations on IT. Each governance structure has its own characteristics, targets a specific IT related area, and has its own strengths and weaknesses. However, many share similar concepts, even if the

terminologies are somewhat different. On-going initiatives are taking place to harmonize and integrate leading frameworks to achieve greater compatibility between frameworks and create a holistic one-go framework that will reduce the complexity of implementing several frameworks in an organization. The latest of these initiatives is the release of COBIT 5 in April 2010.

In this section a briefing of the leading most commonly used frameworks will be developed. (Barton, 2004) argues that although these frameworks might differ in content, approach, or area of focus, they are all designed to improve IT governance. Moreover, even though (Anthes, 2004) has emphasized the similarities and differences between the different frameworks, he denoted that all ITG frameworks aim at maximizing IT benefits and values.

The increasing demand on adopting best practices of IT has been driven by organizations as a tool to help in better management of IT quality and reliability to create value to the business while ensuring compliance to regulations and contractual requirements especially deemed by stakeholders' requirements. However, the implementation of these ITG frameworks may be costly and unfocused if they are considered away of technically improving the organizations reliance on ITG, To be mostly effective, these frameworks should be implemented within the framework of the overall CG and business framework to ensure they are providing the organization with the proposed business value. To achieve this, Executives with IT managers, auditors, compliance officers should all work together to make sure IT best practices lead to cost effective solutions, and well-controlled IT value while managing potential risks properly (ITGI,2008b).

Some of the most popular international sound IT frameworks are:

- ITIL V3—Published by the UK government to provide a best practice framework for IT service management.
- CMMI: Capability Maturity Model Integration.
- COBIT 4.1, Cobit 5—Published by ITGI and positioned as a high-level governance and control framework
- ISO/IEC 27002:2005—Published by the International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) and derived from the UK government's BS 7799, renamed

- ISO/IEC 17799:2005, to provide a framework of a standard for information security management
- ISO/IEC 38500:2008, Corporate Governance in ICT.
- BMIS: The Business Model for Information Security Published by the ITGI as a holistic and business-oriented approach to managing information security.
- Val IT: Published by ITGI to help organizations evaluate and monitor the returned value of IT to business.

Other frameworks exist that also can be adopted and customized to be used as IT frameworks although they originally were not meant to be. Examples of such frameworks are 6 Sigma, PMI, Prince2 and many others.

The following diagram published by (ITGI, 2010), illustrates how different frameworks fit into different views of CG and hence, within the overall ITG structure (Figure 9)



Figure 9: Depicts the different frameworks of ITG used in all levels of the CG (ITGI, 2010)

To narrow the study, the paper will come across the frameworks that provide a full ITG framework rather than frameworks that come across individual areas of ITG separately such as ISO/IEC 17799:2005.

A briefing of the most popular ITG frameworks which are used to implement effective ITG, monitor IT or evaluate IT in organizations, such as, COBIT4.1, COBIT5, ITIL,

ValIT and BMIS, Weill and Rose ITG performance measure are demonstrated thoroughly in Appendix(B).

The frameworks are all means of performance measures that allow executives to determine whether the IT systems in their organizations have achieved the expected goals set for them or not. These measurement systems aim to measure the effectiveness of the organization in achieving the five dimensions of ITG.

Adequate research in the area of measuring IT performance took place. One of the very rich areas was focused on the development and testing of IT balanced scorecards and was on linking it with ITBS (see section 2.2.3 ITG Dimensions -ITBS) as many researchers developed many IT measurements using different forms of Balanced Scorecards (Abu Musa,2007; ITGI, 2005).

By examining the frameworks, it is concluded that there is no one single framework that can be specified to be the best-of-all, in fact, the choice of which framework to use differs from one organization to the other and depends significantly on the organizations business strategy ,business needs and its behavior and culture. Regardless of the framework used, the effectiveness of ITG implementations should be evident in business performance metrics. According to Weill & Ross (2005), there is not a single best formula for governing IT, however ITG doesn't happen accidentally, top performers carefully and thoroughly design governance. Moreover, as argued by many researchers, ITG can be deployed using a mixture of various frameworks, structures, processes, and relational mechanisms (Japanese Information Development Corporation, 2000; Van Grembergen, 2000; Van Grembergen & Amelinckx, 2001; Van Grembergen et al.,2003; Heer & Chang, 2008). In his book, Selig (2008), claims that most of the current models and frameworks don't address the entire body of knowledge nor do they describe the life cycle of ITG. Some provide a checklist of processes such as COBIT, while others don't provide "how to" templates, checklists and tools for deployment and continual improvement. Selig also mentioned that some frameworks don't readily provide methods to appraise capabilities or provide guidance for improvement of ITG processes; on the other hand, some have structures that are too flexible or too rigorous and are not easily scalable. Therefore, as Selig (2008) sees, a practical approach to ITG is to select the best of all models and standards, develop a blend of best characteristics, attributes, and processes of each to tailor an approach that is realistic and sustainable for the organizations perspective

environment. Therefore, regardless of the frameworks used, each organization needs to address the major components of ITG according to the organizations nature, culture, and people's needs.

Along with other reasons, this was one of the most important drivers for upgrading COBIT 4.1 to COBIT 5 which was released in April 2010. As denoted by the ITGI "COBIT 5 will be consolidated into a single overarching framework providing one consistent and integrated source of guidance also it aligns with ISACA's Take Governance Forward (TGF) initiative as well as recent global governmental and market-driven enterprise and IT governance initiatives, such as sustainability and green IT.

Therefore, ITG implementation will be more effective and efficient in a business-oriented format that encapsulates all the needs of an organization, where organizations can consider aspects of pain that need to be considered, and drop what they perceive not to be essential for the time being (figure 10).

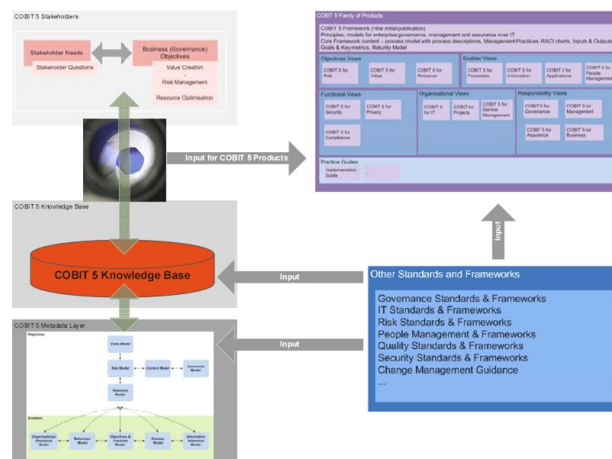


Figure 10: COBIT 5 architecture (COBIT 5,2010).

2.4 A business perspective of ITG in the Educational Institution Contexts.

2.4 .1 A background on the need of means to sustain competitive advantages in for-Profit private schools

According to the overview of this attractive business sector (1.2 Overview section), and by closely analyzing this sector, it is evident that it is a rapid growing sector where many investors are attracted to. This is due to its stable nature, and always demanded service. Considering Porter's 5 forces for competitive rivalry (Porter, 1998; 2004) as cited by (Johnson et. al., 2008), this sector is attracting investors due to its satiability and flexible

business nature as a service provider which is needed today and in the future as long as education exists. This business is promising and not threatened by any international financial crises or by any substitutes that can cause this business to reach an end one day. Therefore a thorough analysis of this business sector using Porter's five forces which are depicted in the following figure (11), is considered in this section.

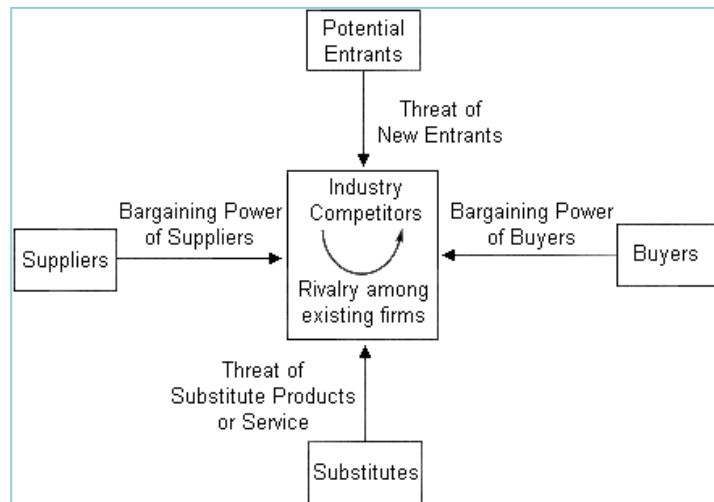


Figure 11: The five forces framework(Porter, 1998)

The five forces help in assessing the attractiveness of an industry or sector, as well as helping to realize the surrounding threats. By realizing the threats, organizations can assess these threats and take counter action, if this is done and barriers were highly established, then organizations can compete in this sector, otherwise the organizations need to find other methods of staying competitive to survive and thrive.

2.4.1.1 The threat of entry

This force defines how easy it is to enter the industry which in turn influences the degree of competition in the sector. If barriers to entry, which are the factors that need to be overcome by new entrants if they are to compete successfully, are high, then this will protect the current incumbents from competition coming from new entries and will allow them to focus on competition with other incumbents (Johnson et.al, 2008).

This force is considered a threat for many schools in this sector, here economies of experience play a significant role, and schools that have been in the field, have set a better reputation, cost advantages as they have learnt how to do things more effectively than an inexperienced new entrant can do. However, changing business models can alter scale

effects or make certain kinds of experiences useless, therefore allowing new entrance to sometimes, outperform existing schools. Nevertheless, access to supply or distribution channels nowadays is not considered a significant barrier of entry, as new entrants are capable of building their supply chain via e-resources hence, overcoming the direct ownership of distribution channels that some schools used to go for as a barrier of entry. Another barrier of entry in this sector is retaliation. This force could be a threat to new entrants if existing firms will demonstrate great retaliation to new entrants (Johnson et.al, 2008), this could take the form of price wars by raising or reducing school fees, differences in staff salaries and benefits, providing better opportunities to attract both staff and students, it also can take a form of marketing blitz. To overcome these factors, ADEC and KHDA have deeply got involved in putting an end to such wars, as it has recently established quality standards that have ranked schools into categories of performance ranking from 1 (outstanding) to 9 (unsatisfactory) and accordingly fees and salaries are to be decided (ADEC,2010; KHDA, 2010). However, the turnover rates of students and staff is still under question from schools in the private sector. Another factor affecting the force of threat of entry is the legislations or government actions that are represented by the legislations that are set by the government to invest or enter the sector. Legal restraints on new entry vary from patent protection, regulations of opening and investing in the business through direct government action in accrediting schools, assuring quality, recruitment policies and so forth. New entrants can overcome such barriers by full compliance to regulations even if perceived to be tough, or by purchasing a valid existing license that already overcame all these regulatory constraints.

Another barrier of entry into the PES sector is differentiation. Differentiation means providing a product or service with higher perceived value than the competitors (Johnson, et.al, 2008). Differentiation in the PES sector takes many forms, it could be through educational systems offered (i.e. American, British, Urdu..etc), or grade levels offered or even via technology offered. However, in regards to product differentiation the delivered outcome proposed is quality education leading to customer and stakeholder satisfaction, hence unlike other industries, this barrier is rarely challenging. For schools to be competitive and achieve organizational excellence, they need to be innovative in creating new forms of differentiation such as the use of technology in teaching or in creating better communication bounds with stakeholders using technology for instance.

By overall evaluating this force with all the barriers of entry discussed above, it is evident that this force is not considered to be a potential threat, and barriers of entry are relatively low, therefore requiring more competition to sustain market position. Governmental audits nowadays and newly implemented standards helped in even reducing the consequences of this force on the PES sector, hence making it even more attractive to investors therefore resulting in more competition.

2.4.1.2 The threat of Substitutes

Substitutes are the products or services that offer a similar benefit to an industry's products or services, but by a different process (Johnson, et.al, 2008). This force is not significant for PES as there are many competitors but almost no substitutes. No home education or on-line schooling, for instance, is accepted, at least here in the UAE. Moreover, public schools are basically for local students and a very little slice of expats receiving their education in Arabic. Although the governmental schools provide very high quality education, 80% of the students in the UAE are enrolled in private education (KHDA,2010). Reasons may go back to reputations of quality education provided, the variety of curriculum offered or the available technology facilities and most important the cultural perceptions and believes. All these factors make private schools business more attractive, hence, increasing competition.

2.4.1.3 Power of Buyers

Buyers are the organization's immediate customers, not necessarily the ultimate consumers or beneficiaries of the service .This force indicates that buyers can sometimes have high bargaining power that their suppliers are hard pressed to make any profit at all (Johnson, et.al, 2008).

Customers, which in the case of PES, are the students and their gradients or parents who make the decision in choosing the schools, are essential to the survival and prosperity of this business. Customers power is likely to be high in some conditions in the PES sector such as, the power of Concentrated customers, "who are a few large customers that account for the majority of sales, therefore increasing customer power". (Johnson, et.al, 2008). This is true for the educational sector, as they are targeted for a limited population consisting of the young k-12 students. With the flexibility to choose among schools as

many provide the same educational context, therefore putting pressure on the schools to reduce fees or provide better facilities to retain their students and reduce turnover. Another force of power of buyers affecting the PES sector is the low switching costs, as moving from one school to another is flexible and has no solid rigors barriers, where many schools are available, providing the same curriculum, with slightly different fees or even lower. Therefore, this force is significant and puts pressure on school owners and governors to find more effective differentiation methods to reduce the bargaining power of buyers by ensuring money for value is considered.

2.4.1.3 Power of Suppliers

Suppliers are those who supply the organization with what it needs, to produce the products or to deliver its services (Johnson, et.al, 2008). With the wide variety of national and international suppliers to select from, this business sector has full control over choosing suppliers and having opportunities to switch to others easily. In the UAE, particularly a wide variety of suppliers exists due to the current flexible economical settings of the country. Nevertheless, because most of the PES schools provide international curriculum; supplies may be provided directly from the source via e-providers.

However, one other aspect to consider is the power of teachers in this case. Teachers in the educational field are also considered suppliers of high power. Within the current context, teachers can switch to other schools flexibly as long as they comply with the standards of teaching and meet the basic requirements set by both ADEC and KHDA. Therefore, the switching cost from one school to another is very low, where teachers have a bargaining power, therefore being a threat to schools. Moreover, if the teachers' turnover rate were high in a school, this would cause the school to lose its customers trust, and be questioned by the accreditation authorities which puts more threat on these schools. Whereas, some schools can benefit from this teacher switch where qualified teachers would not need to be trained and can improve the school's quality. Therefore, suppliers' power is considered a threat in the educational sector for some schools and an opportunity for other schools.

By considering the previous discussion, it is evident that this force is considered a strong force and hence is not considered a strong barrier of entry to the PES sector, therefore making it attractive and more challenging in terms of competition.

2.4.1.4 Competitive rivalry

From the diagram depicted in figure (19), this force is considered the wider competitive force as all other four sources impinge on the direct competitive rivalry between an organization and its most immediate rivals. Competitive rivals are organizations providing similar products and services aimed at the same customer group (Johnson, et.al, 2008). The more competitive rivalry there is the worst it is for incumbents within any industry.

Considering the case of PES, competitors are roughly equal in the type of services they provide, the customers they target, and the staff they require, there is therefore, the danger of intense competition as one competitor attempts to gain dominance over others. Moreover, another factor affecting the degree of rivalry is the growing rate of this industry, as this business deals with services and the number of students compared to the overall population is limited somehow, therefore creating rivalry in attracting students. In addition to that, there is a maximum ceiling of student enrollment according to MOE approval and campus capacity that allows for new entrants into the market. All these factors increase rival, trying to attract customers or by combating with price competitions and lower profitability. The high fixed costs, is considered another important factor affecting this force, as this type of business requires high investment in capital equipment, technology, assets, facilities, licenses and accreditation fees, therefore causing high exit costs and hence, considered to be highly rivalries. To overcome these challenges, schools will tend to reduce unit costs by increasing volumes, to do so they typically try to cut their prices, prompting competitors to do the same thing thereby, and triggering price wars. Moreover, in the UAE context, this also takes another direction, as new entrants to the market request higher fees than some of the most experienced schools in the field. As a counter action, experienced schools will tend to raise their fees to meet at least the cost of quality for benefits. These cost wars can cause rivals between competitors in calling out for regulations to be put regarding the scale of experience therefore creating nothing but more rival in the sector. At the same time, high exit barriers are another factor that increases rivalry. This is because, the closure or disinvestment is high due to high

redundancy costs, high investment on capital, such as assets, buildings, technology, labor , licenses and accreditations which are hard to sell.

Low differentiation in this field is also considered another factor causing rival in this market sector, where schools all provide the same services as there is little barriers to prevent customers from switching between competitors, therefore, creating rivalry.

To overcome this factor, schools need to strive to find new means of differentiation, in which some schools turned to increasing its IT proficiency level as a way to achieve competitive advantage over other schools. The following section illustrates this new differentiation era.

2.4.2 IT in the Educational sector- A business perspective.

By considering Porter's five forces in the PES context as discussed above, it is found that the PES sector is attractive to new entrants while threatening the competitive level of incumbents already in the field.

Competition is at its peak in this profitable sector, schools can achieve competitive advantage if the business is derived in the right direction of seeking new innovated methods that can help in maintaining business value and achieving excellence. One method that many schools have realized is the use of technology to make a difference. Technology has been used a few years back in such institutions as a teaching tool to help in providing a more interactive way of teaching and learning, hence increasing the quality of schools which as a consequence, will attract more customers. Moreover, it was also considered a tool for making teachers' life's less stressful and therefore reducing turnover rates which dramatically affects schools' business process. Recently, technology is considered not only a tool but an enabler to this business sector to help in achieving and sustaining business goals. Technology has found its way into all aspects of these organizations including tactical and strategic activities in addition to daily operational and functional tasks. Examples of its uses include but are not limited to, implementation of networks (intranet/internet), data reservoirs and inventories, database management systems, information systems, communication channels using SMS, and telecommunication facilities, website management as a source of communication with stakeholders, accounting systems, statistical analysis systems, centralized knowledge

management systems, customer relationship management system and so forth. Moreover, IT is now considered one of the top most discussed issues on school governors' agendas. It is important to mention here, that this use of IT is not consistent throughout all schools, it differs as schools perception to the IT value delivery differs, and hence budget allocation will be affected accordingly.

Over the past 10 years, IT has found its way into the educational sector just as it did into any other industry. It became a vital element in these organizations as schools realized that it was a way of creating value and achieving competitiveness. Massive investments in IT have been allocated not only to increase the quality of education in classrooms or to increase interactivity, but also to increase the business value of such private education sectors. Therefore, IT has become a catalyst and the backbone for many of these schools in all aspects such as being part of the administrative, operational functional, tactical, and strategic activities that are practiced throughout the organization. These organizations have realized the potentials of IT to store, analyze, and interpret information, hence being effective in supporting decision making, data inventory and storage, process improvement, better access to markets , creating more effective communication channels, knowledge sharing and boosting innovation and learning in the organization which all result in staying at the competitive edge while meeting stakeholders' expectations. Stakeholders are any parties that perceive direct or indirect benefit from this business(Johnson, et.al, 2008), which in the case of the educational sector are students, parents, owners, the board of governors, shareholders, government authorities, the society and the community.

School executives have realized the value that IT delivers to business, and also its importance in creating new innovative methods of differentiation. Unfortunately, as in other industries and business sectors, the difficulty in measuring the real value delivery of IT is still an issue, therefore there still isn't a full realization of IT's potentials in delivering business value. Hence, this calls out for better ITG implementations. Schools need to consider more than just the management of IT, as this already exists in most of the PES schools, but it doesn't necessarily positively contribute in adding value to the business. ITG is the broader view that considers the strategic importance of IT and its partnership with business to attain business value. This form of governance can help these organizations to achieve excellence by gaining competitive advantage and by creating value over rivals in the same sector.

Very little literature review has considered the for-profit-private educational business sector in terms of the impact of ITG implementation on it or even on how it can help in achieving excellence, as the majority of research done considered a wide variety of industries, and in some implicitly higher education institutions were mentioned in general studies.

In the coming subsection, literature review will be revised to come across available research in the field of ITG implementation in the PES sector.

2.4.3 ITG in the Educational sector- A Literature review.

Extensive research was conducted regarding the implementation of ITG in education and very scarce resources were found on how ITG is governed in the educational sector. Basically the researches in the field targeted the higher educational institutions which are either private or public (Coen & Kelly, 2007; Yanosky & Borreson, 2008; JISC, 2007; Bhattacharijya & Chang , 2007), therefore no ITG implementations in the private educational sectors have been considered yet. As a result, this research will contribute in targeting a new neglected, active, very attractive business sector which is the for-profit - private educational sector.

As mentioned above, research in the educational field was concentrated on the Higher educational field only and in a limited context such as only exploring ITG implementations and best practices without considering its effect or impacts on the performance, or ITG maturity levels (Coen & Kelly, 2007; Yanosky, Borreson, 2008; JISC, 2006; Bhattacharijya & Chang , 2007). It is of utmost importance to mention here, that the context of the education sector in general and the Higher Educational Context (HE) in particular has many characteristics that are different from any other sector as it is basically a service-delivery sector. Many principles of ITG frameworks in the commercial sector may be equally valid for Educational Institutions in general, such as business alignment, risk management. However, others such as specific types of performance measurements, profit related financial measures might not directly relate to this sector especially in HE Institutes (Coen & Kelly, 2007). HEIs are considered educational institutions that provide a service which is the delivery of education to the community just as is the case in schools including for-profit-private schools.

On the other hand, the majority of HIEs are considered non-profit making organizations with limited incomes. Weill & Ross (2004) have highlighted some of the issues encountering non-profit making organizations:

“A frustration facing not-for-profit executives is that many of the management frameworks and measures are designed for profit-seeking organizations where the performance measures of profit, shareholder value, and corporate citizenship are clear. ... Leaders of not-for-profit organizations need a different management framework to help strategies and govern”.

As a for-profit-private educational sector context, the complication is even more frustrating; as these schools provide services and most importantly measure success according to the quality of services they provide which in turn, impacts their profits that is one of the potential aims of such business sector. The for-profit educational sector unlike other commercial sectors; is constrained by many factors that don't allow it to freely increase its profits without limitations. This is due to the fact that such schools operate under the regulations of the Ministry of Education and comply with its regulations, therefore being restricted to the rate of fees charged, number of students enrolled and other aspects that have a direct or indirect affect on the schools financial conditions. Moreover, the high competition in this market sector also plays a role in making this sector different from other sectors, as it is a very attractive business sector, with low entry barriers therefore, attracting new entrance to join the market and hence, increase competition which requires the need to be innovative to stay ahead of the market. In addition to all of this, these service-providing schools usually don't receive any financial aids from the governments as they are considered a private business; all together, these factors make the for-profit-private educational sector different in context from HEI's although both aim to deliver education to the community.

In spite of being considered a for-profit sector, it is different in context from commercial businesses also. This educational sector faces challenges that might not be an issue in other contexts due to its product outcome nature which is education delivery .Some of the challenges and issues facing the implementation of ITG in this sector (Coen & Kelly, 2007; Yanosky, Borreson, 2008; JISC, 2006; Bhattacharijya & Chang , 2007)are summarized as follows:

- The rapid development of technology used in the field which makes it a dynamic, changing environment driven or facilitated by IT as new technologies are frequently evolving to support the teaching and learning processes, in addition to research support, school management systems, networks, on-line databases as a few to mention. These technologies all require the development of more sophisticated models to justify additional investments and ensure long-term plans that are sustainable.
- The growing propel of legislations governing the storage access and use of information have all resulted in schools having an increased responsibility to comply to all regulations, and to set the appropriate policies in place to ensure such compliances are considered. Such legislations include the Data Protection Act, freedom of information act, copyright laws, software usage licenses, access laws, ISP restrictions, access to external educational body sites, data exchange, data confidentiality, and others.
- The level of IT awareness and knowledge among users and stakeholders, particularly students and the need to ensure quality electronic services.
- The increased business risks associated with IT, such as system failure, breach of security, data loss, secured data transmission, confidentiality of data, Access rights as IT is embedded with almost all processes of the schools nowadays.
- The need for more centralization of IT –related services, where schools need to monitor carefully the information flow in and out of its system, student’s personal information needs to be centrally stored and assessed upon gained privileges and authorities. Moreover, data and knowledge sharing is managed centrally to ensure error and redundancy reduction as much as possible.
- The need for high security management of IT, as all information in school is top confidential and any access to information can be a threat to the business as a whole or to individuals which in both cases is a critical issue. Thus, schools need to orderly maintain and sustain the school’s IT access channels and ensure they are well protected and monitored.
- The difficulty of isolating value perceived from IT and comparing it to expenses and investments on IT.
- The level of awareness of IT related risks and the need to manage and control them.
- The level of IT value creation awareness and realization among top educational managers that are specialized in educational leadership with minimal business and IT literacy.

By considering, some of the findings of literature regarding the best practices of ITG implementations in the higher educational field, the findings may be adapted to some

aspects of the for-profit-educational sector having in mind the differences in the characteristics of both.

A study conducted by the Education Center for Applied Research in the UK, (ECAR's, 2008): Process and politics: IT Governance in Higher Education, aimed at providing CIOs with information regarding the maturity of Higher Education (H.E.) ITG while also attempting to define the best practices associated with good ITG outcomes (Yanosky & Borreson, 2008) . The population targeted in the study included 438 CIOs which are members of Educause H.E. in the USA and Canada, and 216 executives working outside central IT. The study revealed that 60% of the respondents identified ITG maturity to be initial or repetitive which are the second and third least-mature levels on a six level scale of increasing maturity. On the other hand, 16% showed to be at the top two levels where the rest laid in between.

In this study Yanosky and Borreson (2008) found many associations between ITG maturity and desirable institutional outcomes, as respondents reporting higher ITG maturity showed to agree more strongly than others that IT has got a strategic position in their intuitions.

The main drivers pursuing ITG as revealed by respondents were : aligning IT goals with institutional goals(74%), prompting an institution-wide view of IT (51%) followed by IT's ability in encouraging/collecting community input (38%) and transparency in decision making indicated by (33%). On the other hand, the top two barriers cited mostly were decentralized/informal institutional culture (42%) and lack of participation from necessary parties indicated by 40% of the participants.

In regards to the performance of ITG the study has came up with a list of factors that lead to effective ITG (Yanosky & Borreson, 2008) , which are :

- Active design of ITG.
- Perceived ability of key ITG participants to describe ITG accurately;
- Higher overall mean frequency of participation in providing input and taking part in decision making;
- Incorporation of measurement and review in ITG;
- ITG involvement in formal project review and approval; and
- ITG participation in institutional budgetary processes.

These factors represent a list of action items for ways of improving ITG maturity and performance in the HE context. Furthermore, the study also concluded that the top items for successful ITG outcomes were the support of executive leadership, indicated by two-thirds of the respondents. Skills/personalities of key individuals as stated by 61% and the other 60% find that inclusion/participation of stakeholders is an important item for successful ITG. In contrast, the primary factors for unsuccessful ITG outcomes in HE context were also mentioned in the study, which were non-inclusion/non participation of stakeholders (49%), skills/personalities of key individuals as seen by 34% and lack of support of executive leadership suggested by 33% of the participants.

To conclude, Yanosky & Borreson, (2008) found that that the ITG maturity reported by most respondents was relatively low; this was speculated that many HE institutions deal with ITG differently and therefore perceive its importance subjectively. In addition, ITG is seen to be in its early stages for these educational sectors that have yet a lot to consider in order to reach higher ITG maturity levels.

Another research study was carried out by Coen & Kelly (2007); JISC (2006), as part of a project on Information System Management (ISM) and ITG throughout the whole UK Higher educational sector. This included 170 Higher Educational Institutions (HEI), the study aimed to understand the current ISM and ITG procedures in place within the HEI, and to define the current ITG gaps, while also defining the needs of participants to develop an effective ITG self assessment framework.

The study only came across the existing ITG procedures implemented to face given scenarios having them actually raised. These scenarios' cover IT security, investments in IT and its inhibitors on H. E., disaster recovery, and perceived value for money.

Participants were requested to identify three emerging issues that would have the greatest impact on the way IT is governed. These issues were raised by different job types such as directors, librarians, managers, and corporate managers. The different areas highlighted are summarized in table (6)

Table 6: 18 different areas having the greatest impact on the way IT is governed in HEI (JISC,2006).

Different areas having the greatest impact on the way IT is governed in HEI(JISE,2006)	
1.	The need for continual access to systems.
2.	The need to support collaboration within and between institutions.
3.	Operating successfully in a competitive HE market.
4.	The needs to ensure IT systems comply with relevant legislation.

Different areas having the greatest impact on the way IT is governed in HEI(JISE,2006)	
5.	The need to have better appreciation of IT issues at a senior management level.
6.	Institutional effectiveness and value adding
7.	Increasingly pervasive use of e-learning and use of advance technology which require on-going support and well management.
8.	Staff and student expectations of their institutions and its provision of IT.
9.	The need to ensure adequate staff and student training and skills to exploit IS and technology.
10.	All related cost issues, including aligning IT expenditures with funding methods, cost saving and reduction, securing proper IT investments, cost effectiveness and achieving value for money.
11.	The need to integrate information and systems across the institutions.
12.	Risk associated with techno logy
13.	Selecting the right information systems to meet the institution's requirements.
14.	Strategic alignment
15.	Organizational structures to move towards a more centralized, coordinated approach in deploying and supporting IT an IS.
16.	Issues related to ongoing development of technology, and accounting for the rapid development of evolving technology.
17.	The need for utilizing formal tools for ITG.
18.	Others that don't fall into the above mentioned areas.

The study also indicated the use of a variety of tools to govern IT including COBIT, ITIL, Prince, League tables published by newspapers, performance Indicators, and balance scorecards by different institutions participating in the study.

By deeply analyzing and considering the previous literature on ITG implementations in HEI it is obvious that the main aim was to define ITG procedures used in HE and the way IT investments are managed. It didn't come across identifying the ITG maturity levels of the current implementations nor did it measure performance impacts of ITG on HE. This was due to the fact that the purpose of the research was to create a self-assessment ITG framework rather than exploring the current ITG implementation settings and levels.

Due to the complexity surrounding the educational business context in general and the HEI in particular, Coen & Kelly (2007) have designed a framework that would be flexible to be used by HEI's regardless of the size, years in education, cultural differences and backgrounds or financial imperatives. The framework is built around five areas: governance, management, resources, structures, and services. This framework includes both IT management and ITG as depicted in figure (12). By viewing the figure, it is clear that the ITG activities sit above and overlap with management. The ITG part is concerned with ensuring effectiveness of management and the alignment of activities with the institutional goals.

Therefore, the governance aspect is concerned with three main key issues, the vision, alignment, and assurance to all stakeholders that IT is aligned to strategy. The

location of services in an intersecting point of the diagram indicates the service-centered ethos underlying the framework.



Figure 12: A framework for the management and governance of information systems (Coen & Kelly, 2007)

The framework developed considers both ITM and ITG but gives ITG only a part of the processes as it overlaps and overviews all the ITM processes and comes at a higher order. This is appropriate in considering the overall effectiveness of IT implementations in educational institutions where the framework considers the very basic infrastructures of IT to the very top level of ITG practices. The toolkit describes four steps through which institutions can review and improve their management and governance of IS and IT (Coen & Kelly, 2007):

- Preparation phase
- Self-assessment phase (Governance, Resources, Organization, Services)
- Planning improvements, and,
- Implementing Improvements.

As mentioned previously, in this framework, governance is considered as three main parts including (vision, alignment and assurance); which is different from the division of earlier practitioners such as (Weill & Ross 2005; ITGI, 2003) where ITG had five main domains which were (alignment, Risk management, Value delivery, Resource management, and Performance measurement). This is probably speculated to the fact that the framework intentionally was adapted to simplify the ITG assessment process for HEI's use.

Moreover, the framework is covering both ITM and ITG aspects, therefore covering aspects in a more overlapping matter, for instance, resources are given a devoted section in the framework as part of the management process; whereas, ITG comes at the top to oversee all management processes. Therefore, the framework is beneficial to HEI's that want to be put on the right track regarding their current implementations. The framework doesn't consider aspects that help in perceiving value from an educational point of view such as customer or student satisfaction, student enrollment rate, overturn rate. Furthermore, neither does it consider the business side of these institutions such as cost effectiveness, business growth and flexibility or asset utilization as an impact of the effectiveness of ITG in an organization in enabling IT to deliver these objectives. This is probably due to the fact that this framework doesn't serve to inform the HEI's about their ITG maturity level and then build on it; in fact, it helps to understand qualitatively the status of the current system and then guides in setting improvement and action plans.

Ultimately, it is important to pin point the fact that the nature of the framework is very effective for HEI's settings; however, it is not entirely suitable for the for-profit-private educational institutions. This is due to the differences in both settings that can be highlighted as follows:

- The structure of the HEIs is consistent of many colleges that might be on different geographical areas, and have different directors, settings, and structures, whereas, schools have one director, even if they have branches they centrally coordinate.
- Reliance on e-learning in HEI's more than is the case in schools.
- More socialized IT staff and divisions due to the wide use of IT in HEI's than in schools.
- Larger numbers of campuses in the case of HEI's therefore more departments of IT which might or might not report to a centralized department.
- Better awareness of IT importance in HEIs than in schools among senior executives.
- Usually in schools, risk management of IT related issues is not considered properly.
- IT budget allocations in schools are limited and not given a high priority yet.

All these factors have implications on the settings of ITG in for-profit-private educational sectors that need to be considered when evaluating the level of ITG implementations in these organizations.

Therefore, this indicates the need for more compressive research in the field of ITG practices and implementations in the for-profit-private educational sector where there is a

lack of literature and research in this area as an attractive business sector. Hence, this research paper contributes to the field of ITG by exploring a new un-explored context which is the for-profit-private educational sector. The study will investigate and explore the common best practices of ITG implementations in this sector, in addition to highlighting the drivers, inhibitors, and current settings affecting the current status of ITG in it. By conducting extensive research and exploring the ITG settings in this sector, the research attempts to: build an understanding of the ITG awareness level; current implementation in place; best practices used, and the frameworks that might have been implemented. The research paper also attempts to explore and investigate the way ITG is affecting the value delivery and performance of such institutions; and the maturity levels that are currently in place; the inhibitors that are encountered by this sector that might be new to other sectors. By understanding all these aspects regarding ITG in a for-profit-private educational context, the first three research objectives will be met which were:

- To investigate the extent of ITG realization, implementation, and value perception in the for-profit private educational sector in the UAE.
- To evaluate current ITG practices implemented in PES,
- To define the factors that might influence the level of ITG in schools including the enablers and the main barriers impeding effective implementation of ITG.

According to Lufthman (2000); Effectiveness is whether an organization is doing the right things. Therefore, in other words, ITG effectiveness reflects if ITG efforts are integrated with overall enterprise governance arrangements in the organization and how proper are these ITG arrangements within the organization. Therefore, by studying the effective implementations of ITG in organizations, a well understanding can be generated regarding the best practices that lead to proper ITG implementations for the targeted context. Hence, ITG effectiveness helps to understand how well the practices, process, and procedure implemented direct the implementation of ITG in organizations. Moreover, it helps to put hands on pain-points, strength areas and consider how organizations are targeting each part individually that is contributing to the overall level of ITG governance in the organization.

According to Weill & Ross (2005), the effectiveness of ITG in an organization can be assessed by evaluating how well it enables IT to deliver four objectives: cost effectiveness, asset utilization, business growth, and flexibility. This effectiveness will result in better

business performance which reflects how satisfied an organization is with the current contributions of IT to the business (ITGI, 2010) this includes measuring the value created by IT and how well IT is performing in-line with expectations. As a result, this will help in understanding the current ITG procedures and best practices implemented and how they contribute in achieving overall ITG maturity levels and ,hence, affect overall organizational corporate governance and strategic business goals. This will help in reaching the most important part of the third research objective:

- To measure ITG maturity levels and ITG performance in for-profit private schools .

Effectiveness will be used in the research paper to denote and understand how the effectiveness of implementing different elements contributes to the overall effectiveness of ITG implementations in for-profit-private educational sector. On the other hand, performance measurements will be used to measure how satisfied an organization is with the current contributions of IT to the business including value creation performance in line with business expectations, cost effectiveness, asset utilization, business growth and flexibility. In addition to measuring IT investment returned value, and how well IT performance is meeting the organizations expectations.

This will help in addressing the last research objective:

- To identify the perceived IT value created in for profit private schools as a result of ITG implementations.

By studying the level of effectiveness of different factors, ITG elements and best practices in the for-profit-private educational settings, and by measuring the performance and maturity level of these organizations, it will be useful to explore and understand what factors have the most significant impact on performance and IT maturity in for-profit-private educational contexts. Moreover, it will also help in understanding how ITG maturity levels might affect the performance level of these organizations. Therefore, the different factors or variables used are the factors or elements representing best practices or procedures that the for-profit-private educational schools have in place to govern IT. Moreover, the variables also represent the overall ITG affect on business performance as perceived by schools in the industry, and the ITG maturity level and how it might be affected by some or all of the factors and ITG settings in schools. Furthermore, the

variables also reflect how the factors along with the IT maturity levels might contribute in directing the levels of business performance.

The findings of the correlations between these variables will then be used to develop a full understanding of the status of ITG in the for-profit-private educational context. The following figure (13) summarizes the research model.

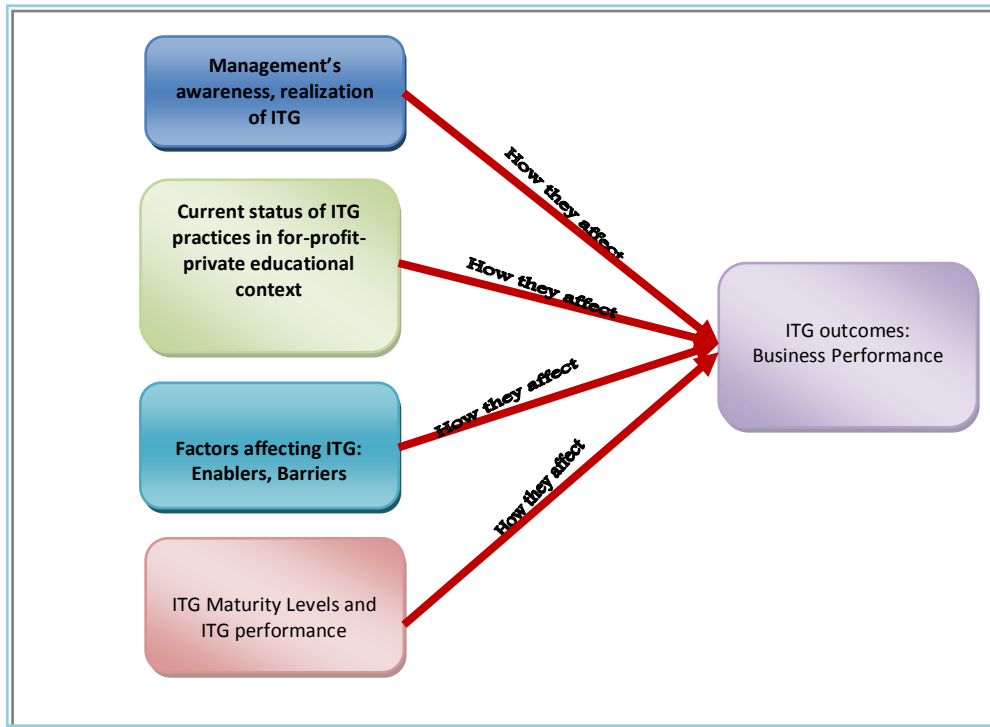


Figure 13: Research Model

Chapter 3: Research Methodology and Approach.

3.1 Purpose of Research

The classification of research purpose most often used in research methods literature is one of three types, exploratory, descriptive and explanatory. However, in a single research paper more than one approach may be used (Saunders et. al., 2007). As explained by Robson, 2002, in an exploratory study, researchers seek to understand what is happening, looking for new insights on the topic and trying to ask questions and assess phenomena in a new light. This approach is particularly useful when there is a need to clarify understanding of a problem, or to build a rich knowledge background of the topic in hand, in addition, exploratory research is useful when the problem is difficult to limit and when there is little or restricted research available on the topic (Wiedersheim & Eriksson, 1997, Ryerson, 2007). The principle ways of conducting exploratory research as denoted by (Saunders et. al., 2007) is by conducting critical literature review, interviewing experts in the domain, creating focus group interviews. The second type is descriptive studies, where the researcher attempts “to portray an accurate profile of persons, events, or situations” (Robson, 2002). The researcher needs to ensure having a clear picture of the phenomena on which data will be collected which describes the population and other related aspects that might be an extension of or a forerunner step to an exploratory or explanatory research. Finally, the Explanatory research is considered when a causal relationship between variables needs to be established. The study will be carried out on a situation or problem to explain the relationships of the causes and effects between various variables.

Considering the research topic in hand, which is all around ITG and its impacts on the for profit private educational sector, as mentioned previously, due to the fact that research in the domain of ITG is still in its early stages and theoretical models are scarcely available the research is exploratory in nature. Other than being emergent in the late nineties (De Haes & Van Grembergen, 2006; Weill & Ross, 2004), ITG research material in educational contexts is rare where conclusions cannot be built on. This is not only true because it is a new research domain, but as stated by Benbast and Zmud (1999), “generally IS researchers have been less successful than their colleagues in other business school disciplines in developing a cumulative research tradition. Without such cumulative results, it becomes

difficult, if not impossible, to develop and assess strong theoretical models such that prescriptive actions can confidently be suggested for practice.

By exploring the research domain that relates ITG to a business perspective of for-profit private schools, the research paper aims to comply with consumable IT research, being both academically and practically relevant and beneficial. The study will explore literature review of ITG practices implemented internationally and in different contexts. Moreover, interviews with experts will be carried out to understand the current position of ITG implementation in the UAE context, in addition to viewing the dilemma's facing this effective implementation from a higher executive, decision-making view. In addition, surveys and personal interviews will be conducted to explore and build a holistic view of the actual implementation of ITG in for profit private schools in the UAE. This will help in finding the actual critical success factors and barriers that impede such implementations.

In some areas, Descriptive research approach might be required, such as in the case of describing why the current context of the for profit private schools business sectors are so attractive to investors, why do they need to consider effective ITG implementations and so on. The descriptive approach will be thoroughly associated with the evaluation and synthesizing of ideas described.

Explanatory approach is sometimes used in the paper to explain a cause and effect relationship between variables such as explaining the relationship of ITG practices and for profit private school performance but it will not be considered the major research approach used throughout the paper.

3.2 Research Approach

According to Saunders et al., (2007), a research project may either use the deductive or inductive approach. The deductive approach is used to develop a theory and hypothesis and to design a research strategy to test the hypothesis. This approach is mostly effective as a scientific research approach where the researchers tempt to develop a theory that is subjected to a rigorous test. The deductive approach is advantageous in the fact that it tends to search to explain causal relationships between variables; consequently, hypothesis will be developed and tested on a selected population. The deductive approach requires controls to allow the testing of hypotheses with a demand for a highly structured methodology. Researchers in this case should be independent of what is being observed to

avoid any subjectivity in the choice of questions and the way they are phrased. Another important characteristic of deductive approach is the ability to generalize statistically about regularities in human social behavior or in applicability of theory developed, therefore, proper selection of samples and their size is of significant importance to gaining accurate results ensuring generalization. Deduction approach is criticized of its tendency to construct rigid methodology that enabled a cause-effect link to be made between variables without giving a clear understanding of the way humans interpreted their social work to explain why such cause and effect relationships occurred. In addition, deductive method also does not permit alternative explanations of what is going on. On the other hand, Inductive approach allows researchers to collect data and develop theory as a result of the analysis of this data. The purpose of such approach would be to build an understanding of the way humans interpret different events and how they explain what is going on, so as to better understand the nature of the problem and the context of what has caused it. Therefore, in the case of inductive approach, the researcher would first collect the data using different methods, and then make sense of the data collected by analyzing this data. The results of the analysis stage would then be formulated to generate a theory or reach results. Therefore, in inductive approach theory would follow data rather than vice versa as with the deductive approach.

The inductive approach is basically concerned with the context in which such events were taking place, therefore considering small samples of subjects is more appropriate than a large number as with the deductive approach.

Because research in the domain of IT governance implementations is in its early stages as research in this topic is considered recent where it basically emerged in the late nineties (De Haes & Van Grembergen, 2006; Weill & Ross, 2004). In addition, there is little existing literature on the implementation of ITG in the private educational business sector, the inductive approach will be considered in this research paper by generating data, analyzing and reflecting upon what theoretical themes the data are suggesting. The approach of the research paper would be to first start by collecting data using different data collection methods, regarding ITG concepts, theory's, and implementations in different contexts including adequate literature review as a source of data. The data will then be analyzed and interpreted to measure the research objectives and answer the

proposed research questions, hence results and findings will be formulated, and conclusions will be reached inductively.

3.3 Research Design

Research design focuses upon turning a research question and objectives into a research project (Saunders et.al, 2007). It consists of research strategies, choices, and time horizons.

3.3.1 Research Choices:

This method of selection is dominant to decide on whether the data collection and data analysis methods and techniques will be quantitative or qualitative. Quantitative is the data collection techniques or data analysis procedure that generates or uses numerical data. In addition, this data can be statistically analyzed and fit into diagrams. In contrast, qualitative methods are used to describe any data collection technique or data analysis procedures that generates or use non-numerical data, which is based on meanings and information. The results can then be categorized, clustered, or analyzed to reach meaningful conclusions in a cause-effect matter. Researchers can rely on one or more data collection technique throughout the research process.

The Mono-method can be used as a single data collection technique and analysis procedure is used during the research process. On the other hand, the researcher can use more than one data collection technique and analysis procedures to answer the research questions which are called using “Multiple methods”.

The mixed method research uses quantitative and qualitative data collection techniques and analysis procedures either at the same time or one after the other. Each type of data is analyzed as it is to be, in other words, qualitative data is analyzed qualitatively and quantitative data is analyzed quantitatively (Suanders et. al ,2007) .

As for this research paper, quantitative and qualitative data will be collected; therefore, multiple methods of data collection will be used along with a mixed research method, as both qualitative and quantitative data collection techniques and analysis procedures will be used at different stages. Surveys will be distributed to the sample population as a quantitative method of data collection, which then will be analyzed statistically. Moreover, qualitative data collection methods will be used to collect data

from both experts in the field and form Executives, and IT managers of the defined case studies, this data will then be analyzed to reach meaningful sensible conclusions.

3.3.2 Research Time Horizons.

According to Saunders et. al. 2007, a research may either be a longitudinal or a cross-sectional study. The longitudinal study is the term used to express a study of a particular phenomenon over an extended period of time where the researchers will observe people or events over time which enables them to exercise a measure of control over variables being studied and monitor how results might be affected or changed over time. On the other hand, the Cross-sectional study is the study of a particular phenomenon at a particular time as if it was a snapshot in time.

In this research, Cross-sectional research was considered, as the period of time the research took place over, and the period of data collection and analysis was relatively short compared to the time available in a longitudinal study that might take years. Moreover, the settings of the for-profit educational sector may change in the future; therefore, the study is valid for the current settings and context. To stick properly to the time limitations, surveys were used as a method of data collection. In addition to a very slight amount of interviews which are restricted within the time boundary available.

3.3.3 Research strategies

The main research strategies are experiment, survey, case study, action research, grounded theory, ethnography, and archival research (Saunders et.al, 2007). Researchers need not to think of these as discrete entities, they are to be used with any approach or research method, researchers may also decide to use many strategies for one study, as multiple methods can provide better opportunities to answer a research question and to evaluate the extent to which findings may be trusted and inferences made (Bryman, 1989).

According to Ryerson (2007), exploratory research often builds on secondary research. "Such as reviewing available literature, and/or data, or qualitative approaches such as informal discussions with consumers, employees, management or competitors, and more formal approaches through in-depth interview, focus groups, projective methods, case studies or pilot studies.

For this research, the research strategy used will depend on multiple research methods: literature research, initial pilot case research, benchmarking research, and case studies. This variety allows for obtaining richer insights in reality as stated by Mingers (2001) “different research methods focus on different aspects of reality and therefore, a richer understanding of a research topic will be gained by combining several methods together in a single piece of research or research program”. The different research methods used and phases are summarized in figure (14) below:

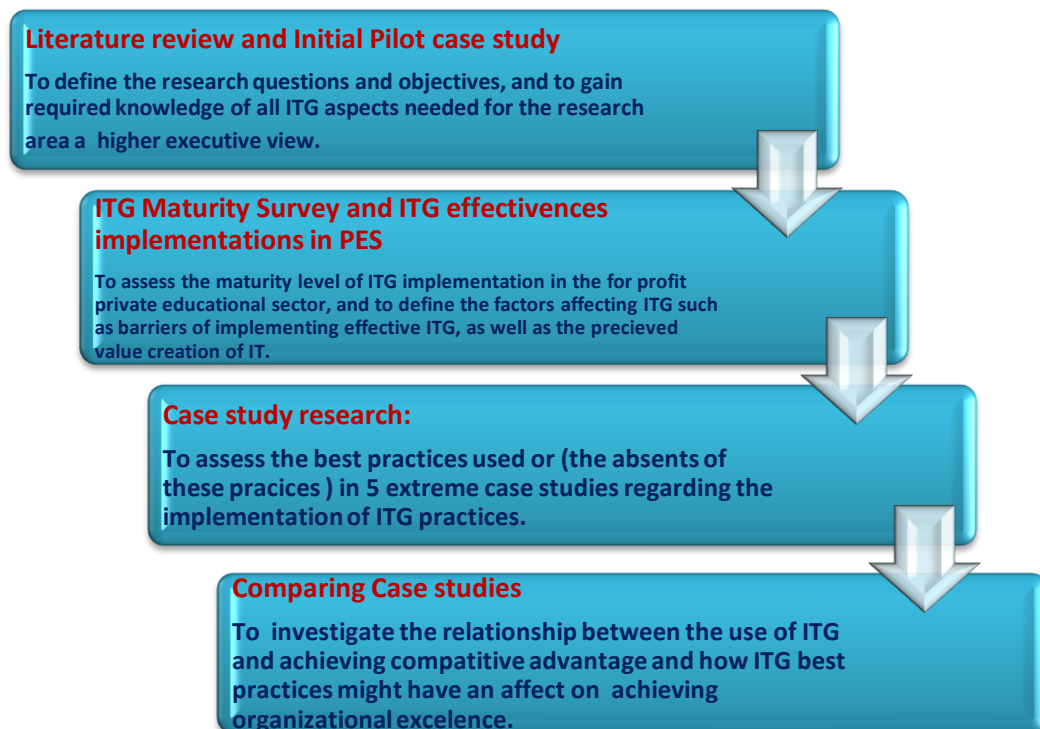


Figure 14: Research process

3.3.3.1 Literature review and Pilot Case research

The research process started with a thorough critical review of available literature, to explore the research domain and define the research questions and objectives. This literature review targeted the fields of corporate governance, IT governance, the relationship between them, the implications of ITG on the educational sector, and finally the analysis of the different ITG frameworks. To ensure that the topic was relevant and that it deserves to be researched in, initial pilot cases were considered where five Executives from both KHDA, ADEC and the MOE, were interviewed and their feedback was

used in formulating the direction of the topic tackled. The pilot interviews were formed in a semi-structured interview format with open-ended questions that lead to additional questions in some cases according to the direction of the discussion. The pilot interviews basically included five IT and Non-IT Executives in the Educational field in a decision making position. The purpose of the interview was to initially define the awareness, perceived importance of ITG, objectives and drives of implementing such practices to the private educational sector, inhibitors that might be encountered, performance measures that can be used to measure IT value, future plans regarding ITG implementations and other relevant questions all within in the school business context. The findings of the interviews such as inhibitors, drivers, enablers, and perceived IT value were analyzed and fed into the benchmarking survey distributed to schools.

These interviews also helped in considering ITG aspects from a higher management view to compare it afterwards with the finding of the surveys of school owners, and boards. It also helped in viewing the top management and decision-making authorizes', current and future plans regarding ITG. Moreover, it helped to pinpoint personal initiatives of schools in taking advanced steps into ITG implementations without being driven by compliance demands of higher educational authorities.

3.3.3.2 Survey's and Benchmarks

The following step was aimed at examining the current level of effectiveness and maturity of ITG implementations and best practices in the sample of for profit private educational sector schools. Moreover, another goal was to understand the barriers that impede the effective implementation of ITG in the sample schools' population, as well as, defining the perceived value returned from effective ITG implementations.

To achieve this, the survey was administered and distributed to 50 for profit private schools around the UAE, the targeted schools were schools that are accredited and approved by (KHDA and ADEC) including the ones selected to be outstanding or high-performers. This selection has been made to ensure that the schools have reached a high-level of competence, as they have reached a mature level in academic disciplines and settings such as curriculum settings, high-qualified staff, accreditations, and so forth. This setting allows for focus on new horizons of competition and differentiation which will

basically be on IT and innovation as a source of gaining benefits via high IT investments such as CRM, school information systems, Intranets, Centralized KM and many others.

The survey had been sent to ADEC for validation and verification, where they have taken the responsibility of distributing and collecting the survey for Abu Dhabi, Al Ain and the Western region of the UAE. Due to the fact that the process required several months to be finalized which was unfeasible within the limited time frame of the dissertation, the Emirates of Abu Dhabi has been excluded from the sample population. However, sample data has been collected from Al Ain City which represents one of the largest territories in the Emirate of Abu Dhabi, in fact high support was given from the MOE in Al Ain region as an official letter was faxed to all private schools regarding the importance of supporting the study. On the other hand, for the Emirate of Dubai, and the other Eastern coast cities; school e-mails have been sent to randomly selected schools which included a total of 35 schools. Schools that refused to participate in the study were replaced with other schools willing to participate. All schools were free to select either completing the survey online, via an electronic form or by hard copy that can be faxed or mailed back via a pre-paid carrier to the researcher.

Schools were informed that the surveys should be completed by the school Principal or any other Executive manager with decision-making delegations and authorities. A brief definition of the IT Governance was provided with clarifications of other terms such as [CIO] to remove any confusions or ambiguity from the survey.

The survey starts by giving a brief definition of what ITG is, and explains the purpose of the research. Moreover, ethically it ensures to participants that any provided information will remain top confidential and only be used for research purposes. To ensure anonymity of participants, school names were replaced by aliases such as School 1, School 2...etc. Participating schools were offered to get a copy of the research findings if interested. Moreover, if any school is interested, a benchmark with other schools (without names) will be provided with recommendations that would help in improving the ITG practices of that particular school.

The survey is basically built around and extracted from COBIT5 focus areas and maturity model, the ITGI survey (2008), additional to the ITG governance performance matrix developed by Weill & Ross (2004) (See Appendix (A)), which was customized to suit the demands of the educational-business context. This was necessary as no one survey has

targeted this for profit service sector with its unique characteristics in literature review up to now.

Therefore, the survey was divided into sections that helped in reaching the proposed research objectives and hence the survey sections included the following:

- A section to measure the awareness and effectiveness of ITG implementations in for profit educational sector. Questions of this part are adapted from both COBIT 5 framework and ITGI survey with modifications to suit the educational nature of this sector. This part helps in evaluating:
 - The objectives and drivers of implementing ITG.
 - Importance of IT to this sector.
 - Outcomes of IT
 - IT accountability.
 - Effectiveness of ITG as perceived by for profit educational sector.
 - Inhibitors encountered that impede effective ITG implementations.
 - Use of ITG frameworks – if any.
- A section to measure the ITG Maturity level. Maturity level measures were adopted from the ITG maturity model developed by the (SEI,2007; ITGI, 2010) that was targeted to express maturity levels of software development capabilities which then was applied to other disciplines as an effective maturity level measurement. The SEI model was then adapted by the ITGI for the COBIT framework (SEI,2007; ITGI, 2010).
- The enablers to effective ITG as perceived by school principals.
- The used frameworks in schools.

As defined by COBIT, there are six levels of maturity, in a generic scale starting from 0 (non-existent) to 5 (optimized) as shown in (figure (15) in Appendix (A) COBIT section) (SEI,2007; ITGI, 2010). A clear description of processes, activities, and standards of each were provided to help schools easily determine their current state and the future proposed state. In the survey, the description was rephrased to a question in a simple language away from any business or IT jargon to ensure consistency with the other survey questions. For example, the description of level (0) non-existent by ITGI is “Complete lack of any recognizable processes. The enterprise has not even recognized that there is an issue addressed” which is formulated in the survey in a simpler form as “IT governance is not considered an issue of concern in our school”. The same applies to all five maturity levels (see figure (15) for an illustration of all 6-maturity levels).

It is also convenient to mention here, that for the inhibitors of effective ITG performance, the question was formatted to be a multi-answer question where participants are provided with a list of inhibitors extracted from literature review as mentioned in section(2.2.4) and from the inhibitors mentioned by the experts in the pilot interviews. To allow flexibility in defining other inhibitors that might exist in the context of PES which might not have been encountered in other business sectors, space has been provided for participants to add inhibitors other than the ones mentioned.

Performance has been considered from two perspectives: general business indicators, and business indicators from an educational context point of view. The general business perspective that applies to all forms of businesses as revealed in literature review and by considering aspects of ITBSC (see 2.2.3.1 IT value and performance section) (e.g. process improvement, cost reduction, profit increment). Due to the fact that private schools are very conservative in terms of giving out precise figures regarding profits and ROI, this performance measure will be explicitly mentioned as a very generic question such as “ ITG has a positive effect on the organizations ROI or on increasing profit”. On the other hand, the other aspect considered in terms of the performance indicators is the indicators as perceived by the Private Educational business sector’s point of view. This sector has additional factors influencing its performance, these factors have been determined from literature in general and from the pilot interviews in particular. The interviews addressed the most important issues of how ITG can help in improving school performance. After analyzing the findings, of the five IT and Non-IT executives, indicators have been fed into the main survey. An example of the question:”which statement relates most closely to the performance of IT in terms of the educational context of your school?. (Multiple answers accepted), has choices driven from the interviews such as:

- It helps in gaining better customer/student satisfaction.
- Provides in increasing staff retention and decreases turnover.
- Increases student retention, increases student enrollments and decreases student transfer to other schools.
- Creates differentiation and competitive advantage over other schools.
- Allows better quality education, therefore better school reputation.
- More effective school processes, knowledge sharing, data inventory, information retrieval and other operational and functional processes that allows for higher school effectiveness and performance.

- Allows for more creativity, innovation and creates a learning culture in school.
- Reduces costs(i.e. capital, assets) and increases profit.
- Helps in achieving higher compliance with external accreditation parties such as ISO, CITA, MAP, ADEC, KADA...etc)

The survey is used to gain both quantitative and qualitative data from participants.(See Appendix C). The collected data was then analyzed as discussed in Chapter 5 of this paper.

<p>■ 0 Non-existent. Complete lack of any recognisable processes. The enterprise has not even recognised that there is an issue to be addressed.</p> <p>■ 1 Initial/Ad Hoc. There is evidence that the enterprise has recognised that the issues exist and need to be addressed. There are, however, no standardised processes; instead there are ad hoc approaches that tend to be applied on an individual or case-by-case basis. The overall approach to management is disorganised.</p> <p>■ 2 Repeatable but Intuitive. Processes have developed to the stage where similar procedures are followed by different people undertaking the same task. There is no formal training or communication of standard procedures, and responsibility is left to the individual. There is a high degree of reliance on the knowledge of individuals and, therefore, errors are likely.</p> <p>■ 3 Defined Process. Procedures have been standardised and documented, and communicated through training. It is mandated that these processes should be followed; however, it is unlikely that deviations will be detected. The procedures themselves are not sophisticated but are the formalisation of existing practices.</p> <p>■ 4 Managed and Measurable. Management monitors and measures compliance with procedures and to take action where processes appear not to be working effectively. Processes are under constant improvement and provide good practice. Automation and tools are used in a limited or fragmented way.</p> <p>■ 5 Optimised. Processes have been refined to a level of good practice, based on the results of continuous improvement and maturity modelling with other enterprises. IT is used in an integrated way to automate the workflow, providing tools to improve quality and effectiveness, making the enterprise quick to adapt.</p>

ITGI, 2003, Board Briefing on IT Governance, www.itgi.org.

Figure 15: Generic Maturity Model (ITGI, 2003, ITGI 2010, SEI, 2007))

3.3.3.3 Case Study Research and personal interviews:

From the survey results, five case studies were randomly selected for further investigation. This case study research is useful to obtain information on unusual cases which can be especially problematic or especially good in a more closely defined sense” (Flyvbjerg, 2006). After having all surveys categorized according the ITG maturity level, a random selection of two schools ranking the highest ITG maturity level, and the two with the lowest ITG maturity levels, and one in between were selected . If by coincidences the two schools were from the same Emirates, another school was selected instead to ensure a wider choice of different Emirates was considered. The selected schools were invited to participate in personal interview that was carried out with the Executives of the schools, if schools refused to participate in the study, they were randomly replaced with another school within the same category. As argued by Eisenhardt (1989): “with fewer than 4 cases, it is often difficult to generate theory with much complexity... With more than 10 cases, it quickly becomes difficult to cope with the complexity and volume of that data”, Hence, 5

extreme cases are considered to have more in-depth insights on what good, or bad practices have resulted in scoring such level of ITG maturity.

The five schools were invited to participate in this round throughout the UAE where the schools were sent a participation invitation via email with the questions in prior to setting the interview appointments. The interview has targeted the three domains previously mentioned in the benchmarking survey part. The purpose of this stage was to get more insights on the CSF that made these schools achieve the ITG maturity level indicated by Principals in the main survey, while also understanding the real reasons that made high achievers attain this level of ITG maturity, likewise the reasons behind low performers unable to maintain a higher level in ITG implementation.

A meeting was arranged with a school in Alain City where the interview took place with the school Principal over a time span of two hours. On the other hand, the surveys were sent via e-mail with a participation invitation along with the interview questions to selected school around the UAE. An appointment was arranged for a phone call interview, which was then conducted with these schools over a time span of two hours or so.

The findings were then used to reach a conclusion of what factors might have had this significant effect on the ITG maturity level and performance of these schools. A thorough discussion and analysis of these case studies is found in chapter 6 of this report.

3.3.3.4 Comparing Cases Studies and Main survey interview results

The data collected from both the survey and the case studies was then analyzed and compared to investigate the causes that might help in explaining why some organizations achieved higher performance in implementing ITG than those with the lowest level performers of ITG implementations.

This comparison helped in drawing a conclusion regarding the level of awareness, support and commitment of school principals regarding ITG, the current ITG status in for-profit private schools, the factors that might have an effect on enabling or hampering the implementation of effective ITG, and the perceived value created through IT and ITG. This was achieved by comparing the survey data with the interpretations and insights of school principals regarding the causes and effects of the different factors affecting ITG implementation in for-profit private schools.

It is convenient here to mention that, the pilot survey has been used to input information regarding the advantages, inhibitors, and objectives of ITG as perceived from the experts interviewed. Moreover, two questions in the main benchmarking survey distributed to schools were also fed into “The ITG performance assessment model developed by Weill & Ross (2004) (see figure 17) which was explained in details in the (2.3.5 ITG frameworks) section of this report.

To make the flow of how the different research methods fit in together including pilot interviews, benchmarking surveys, Case study interviews and the final comparison more understandable, the diagram below illustrates the scope clearly (see figure 16).

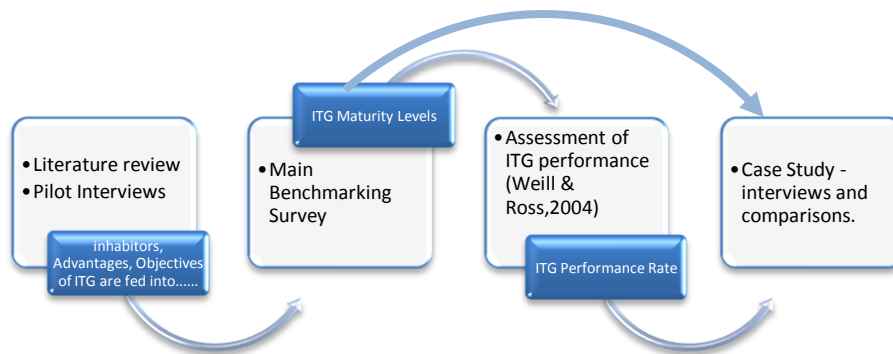


Figure 16 : Illustrates the flow of interviews and surveys of this paper

The following chapters are devoted to thoroughly discuss the data collection, analysis and discussion of the main research strategies used in this research. Chapter 4 is devoted for data collection via literature review and Pilot interviews, whereas, chapter 6 will be devoted for the main survey, however, chapter 7 will thoroughly be devoted for the case study interviews.

Chapter 4: Pilot interviews with Educational decision makers and experts.

The main goal of literature review as to gain adequate insight on ITG practices and implementations in different industries including the educational sector. This was required to build a solid understanding of the best practices implemented, the enablers, inhibitors impeding ITG implementations and the drivers leading different industries to opt for effective ITG. Moreover, the literature review helped in highlighting the interleaving of Corporate governance and IT Governance and how organizations need to ensure that their overall enterprise strategy harmonizes with the IT strategy. In addition to that, literature was needed to understand the studies and findings of other researchers in this new IT-business domain that is of utmost importance in the 21st century.

As for the pilot interviews, the main goal was to customize the ITG practices into a more business oriented educational context environment from the point of view of decision makers in the field. This was necessary due to the fact that literature review on ITG in for profit educational systems is scarcely available, and there is a demand for understanding the ITG implementations in this context particularly. The pilot interviews were very successful in providing essential information from Executives in the field. Such information included the main drivers for implementing ITG in a for profit educational context. Some of the most important findings that were different from other industry contexts highlighted in literature review were, the need for effective ITG in schools to achieve differentiation and ensure being on a competitive edge. Another important driver was complying with different requirements of board accreditations such as CITA, ADEC, KHDA, Cambridge, and so. ITG helps in ensuring that there is a well managed IT system in place that helps in meeting the demands of these external bodies, and that ensures that documents and other assets and resources are managed well and are available on demand. One other interesting driver mentioned by the interviewed experts in the educational field was the need for effective ITG to reduce costs and increase incomes by managing IT related risks properly and ensuring high quality systems are used to their potential in creating business value. As mentioned by an expert in KHDA, a very strong driver for considering ITG in for profit educational sectors was the new Quality Assurance and Inspections program implemented by both KHDA and ADEC. Both educational authorities have set a minimum baseline for all schools where they have to meet certain criteria and standards.

Schools who meet these standards are approved whereas others that fail are requested to close down. These consistent standardized criteria's made all schools in one way or another deliver the same level of education regardless of the curriculum, ethnics, and score they have achieved. The inspection framework is based on nine standards: overall school effectiveness; student achievement and progress; personal development of students; teaching quality; curriculum; the protection, care, guidance, and support of students; quality of facilities; school resources; and leadership and management (ADEC,2010). Each standard is judged against detailed criteria on a nine-point scale ranging from outstanding (1) to poor (9) (ADEC,2010). The framework is adapted from the general EFQM model to suit the requirements of the educational context. KHDA has its own criteria that is slightly different from ADEC but covers the same areas. This new Quality Assurance and Inspections program has pushed schools to consider a lot of improvement and be more innovative in finding new methods of differentiation, where schools with low scores are required to enhance their performance and score higher in the next inspection. The criteria are clear and can be met by all. Therefore, this puts the distinguished schools under challenge to seek for new innovative ways of differentiation and distinction. Therefore schools went for implementing more technology into all aspects including teaching, communication, website, CRM, school information systems in addition to the government's initiative in connecting all schools to a centralized electronic system. All this technology required good management and governance otherwise it could have a counter effect and bring in unexpected problems. Some schools started to seek for effective solutions for managing this massive amount of technology and to make best use of it. The effect of using technology in schools was aimed at increasing the business value and attracting more customers while reducing costs. This dramatic bound into technology caused schools to hire CIOs under different names such as Information technology experts, IT school deputies, IT officer, IT HOD as a few to mention. Another action was having the CIO report directly to the school board, in addition, the CIO became a member of the Executive management committee and all decisions related to IT were done on executive level during executive meetings. On the other hand, schools also have now realized the need to track IT budgets separately and are trying to find methods of measuring the value returned from IT investments, but this is yet in its early stages. Based on the findings of literature review and the pilot interview findings regarding the drivers for effective ITG

implementations suitable for the educational context, a list was interpreted to be used in the main survey (see table 7).

Table 7: Pilot Interviews: ITG drivers in an educational context

ITG drivers in an educational context	Pilot interviews findings					Literature review equivalence.
	P1	P2	P3	P4	P5	
It is a requirement by external regulations such as ISO, ADEC, KHDA...etc	*	*	*		*	Guldentops et.al. 2001
IT management is needed to ensure the school's strategic business plans and IT strategic plans work in the same direction to meet the business goals.	*	*	*			ITGI 2008
Proper management of IT allows efficient use and management of IT resources available in school.		*		*	*	ITGI 2008
Good management and Governance of IT allows the school to have proper risk management especially over IT risks such as data loss, privacy, hackers,etc.	*	*	*	*	*	Guldentops et.al. 2001
Effective IT governance and management allows the school to properly measure and control the performance of IT functions and operations throughout the school.	*	*			*	Guldentops et.al. 2001
Managing and governing IT is needed to deliver value through IT.			*	*		ITGI 2008
It is a requirement or a demand of parents and other stakeholders to gain trust and reputation.	*		*	*		Guldentops et.al. 2001
Creates differentiation and competitive advantage over other schools.	*	*	*	*	*	Guldentops et.al. 2001
It is a way of assuring quality and excellence in all aspects of the school's processes and functions	*	*		*	*	Guldentops et.al. 2001
IT management and governance is essential to gain accreditations and certifications related the quality of IT implementations of schools as a source of good reputation and more certifications.	*	*	*	*		
IT Management and governance is essential for reducing costs and increasing profits.	*	*	*	*	*	Guldentops et.al. 2001

Regarding the most important enablers or Critical Success factors that help in implementing ITG in some schools more effectively than others, were summarized by the experts to be the support of the management and owners of the schools to IT and their belief in its ability to create business value. Another enabler mentioned was local bank support offered to private schools to invest in technology therefore requiring a good ITG system to insure acceptable ROI, this reflects that the schools are considering IT as a business strategy partner. Another enabler is the top management's awareness and

knowledge about IT and its importance for the 21st century in most of the schools which has dramatically changed in the last few years to be stronger. Table (8) summarizes the most suitable enablers extracted from literature and pilot interviews for the for-profit private educational context.

Table 8: Pilot Interviews: Enablers/CSF for educational Context

Enablers/CSF for educational Context	Pilot interviews findings					Literature review equivalence.
	P1	P2	P3	P4	P5	
Senior executive support and commitment	*	*	*		*	Luftman et. Al. 1999 Weill and Rose 2004b PcW and ITGI 2007 ITGI 2008 Letsoalo et. Al. 2006
IT involved in strategy	*		*			Luftman et. Al. 1999 PcW & ITGI 2007 ITGI 2008
IT strategy aligned with Business strategy		*	*	*		Luftman et. Al. 1999 PcW & ITGI 2007 ITGI 2008
Clear ITG principles and policies	*	*	*	*		Weill & Ross 2004b ITGI 2008 PcW & ITGI 2007
Availability of qualified Human resources (CIO...etc)	*		*	*	*	Letsoalo et. Al. 2006 ITGI 2008
Adequate ITG training	*			*	*	McLeod & Smith (1996) ITGI 2008 Letsoalo et. Al. 2006
Good sound communication between IT and Business		*	*	*		Luftman et. al 1999 ITGI 2008 PcW & ITGI 2007
Good change management	*	*		*	*	Guldentops et al. 2001
Clear IT and ITG processes		*	*	*	*	Weill & Ross 2004b ITGI 2008 PcW & ITGI 2007 Letsoalo et. Al. 2006
Good stakeholder involvement	*		*		*	ITGI 2008
Availability of IT resources and financial resources.	*	*	*	*	*	Guldentops et al. 2001 Letsoalo et. Al. 2006 ITGI 2008

The pilot interviews also revealed that the most important inhibitors impeding the ITG implementations in schools were the lack of clear IT processes, the absence or lack of experienced IT-business human resources, the lack of experience in ITG in general, and inadequate realization of the value that IT can return, Lack of resources especially financial aid in regards to IT investments. See table(9).

Table 9: Pilot Interviews: ITG Inhibitors for educational Context

ITG Inhibitors for educational Context	Pilot interviews findings					Literature review equivalence.
	P1	P2	P3	P4	P5	
Lack of skill base in making IT related decisions by Executive management or IT Management.	*	*	*			Luftman et al (1999) ITGI 2008 Gottschalk 1999
No clear definition of roles and responsibilities regarding IT are put in place.	*	*	*		*	Weill and Ross (2004b) ITGI, 2008 PwC and ITGI (2007)
No clear policies and procedures regarding IT are in place yet.	*	*	*	*	*	PwC and ITGI (2007) ITGI 2008
Fear of and resistant to change into a more technology based environment.	*	*				PwC and ITGI (2007)
Executives and other decision makers do not have of the time to consider IT related aspects or don't find it important.		*	*	*		Luftman et. al. (1999) ITGI , 2008 PwC and ITGI (2007)
IT doesn't understand the business needs	*	*	*	*		Luftman et. al. (1999) ITGI , 2008 PwC and ITGI (2007)
The current existing infrastructures don't support IT.	*	*		*		Gottschalk (1999) ITGI , 2008
The Culture of the school doesn't support IT or consider it an essential part. E.g(lack of involvement, resistance to change, resistance to acceptance of regulations, internal politics)	*		*			PwC and ITGI (2007) Weill and Ross 2004b
Lack of training regarding IT and ITG aspects	*		*	*		McLeod & Smith (1996)
Budget limitations, as IT is not considered an asset of its own on the school budget, but it is part of the budget devoted for school's general facilities and supporting material.		*	*	*	*	Gottschalk (1999) Guldentops et. al. 2001
IT is still in its early stages, therefore only being considered a supporting tool in the teaching process, no clear processes are in place			*			Luftman et. al. (1999) ITGI , 2008 Weill and Ross (2004b)
IT is only part of our taught curriculum and rarely integrates in other school aspects	*	*	*			
IT is basically used as a school management system that has no obvious perceived value (operational not a business partner)			*	*		Luftman et. al. (1999) ITGI , 2008
Lack of easy solutions. Difficulties encountered in implementing applications	*	*				ITGI , 2008
Lack of management support and commitment to IT				*	*	Luftman et. al. (1999) ITGI , 2008 Letsoalo et. al. 2006
Resistant to accept responsibility and accountability.		*	*			ITGI , 2008 PwC and ITGI (2007)
Lack of proper communication between involved personals and between business and IT.	*	*				Luftman et. al. (1999) ITGI , 2008 PwC and ITGI (2007)

The information obtained from Educational experts and senior executives regarding the drivers, enablers and inhibitors were fed into the main survey as choices available for selection within the relevant questions.

Chapter 5: Main Benchmarking Survey

In this chapter, the data collection method for the main survey will be discussed in addition to the analysis of this data.

5.1 The data collection method for the main survey

A pilot survey was administered and sent to 10 schools in Alain city to gain adequate feedback and see where confusions might occur. The participants were given only one day to return the survey. Participants were informed to state down any ambiguity or confusion they find within the body of the survey, moreover they were asked to denote any questions that were not clear. After having the surveys returned, the modifications were considered and the survey was ready to be distributed.

The target population was to collect 100 surveys from all around the UAE, , however this was not possible and only 50 surveys were collected. This is due to the fact that new regulations regarding the distribution of surveys to schools were released which take a very long time that is not available within the time limitations available for the researcher. However, for the time being, it was decided to only take six Emirates, along with a main city of the remaining Emirate, which still represents a sample population from all around the UAE except for this main city and surroundings.

As mentioned in the methodology section (3.3.3.2 Survey's and Benchmarks), the surveys for Alain City where distributed via the MOE then collected manually by the researcher. In some cases, some schools needed to be contacted to be reminded or sometimes more than one visit was required. As for the other Emirates, an electronic copy was sent and was followed up by phone calls to ensure it was completed on time.

After collecting the surveys, a total of 50 surveys were checked for completion and there was no missing data or fields. The data was entered into the computer ready for analysis.

The survey questions were grouped into several categories that help in reaching the research objectives, as follows:

- Managements awareness and realization of the vitality of IT which covers:
 - Overall importance of IT in supporting the schools vision and strategy.

- The extent to which IT is part of the overall school governance.
- Role of IT in supporting innovation, school efficiency and effectiveness
- Importance of IT and ITG through the drivers for ITG in schools
- Current ITG status in schools which provides an overview of the schools advancements in ITG. This covers the following parts of the survey:
 - The frequency in which IT is on the management's agenda.
 - The main topics discussed by the management.
 - Whether IT value is measured or not.
 - The extent to which IT functions inform business regarding new business opportunities delivered by new technologies.
 - The extent to which IT is part of the overall school strategy.
 - The extent to which IT and business are aligned and the forms of alignment demonstrated by schools.
 - The existence of CIO in schools and whether the CIO is part of the management team or not .
 - The ITG frameworks used
 - ITG maturity level and ITG performance rates in each school.
- The factors affecting ITG effectiveness (Enablers, inhibitors).
- IT outcomes: this includes the level of satisfaction and value generated by IT which includes:
 - The extent to which IT investments create value to the school.
 - The degree to which IT performs within the expectations of senior management
 - The effect of ITG on creating competitive advantage and creating value (Perceived value created by IT and Effective ITG).

The following section provides a thorough analysis of data collected from surveys within the dimensions defined above. Each dimension will be considered individually with all related questions in the area.

5.2 Result Analysis and Discussion of the Main Survey

5.2.1 Management's awareness and realization of the vitality of IT

This section covers the following :

- **Overall importance of IT in supporting the schools vision and strategy and the schools overall governance :**

More than three quarters of the respondents agree that IT successfully contributes to schools strategy or vision. IT contributions are considered important or very important by more than 76 percent of the respondents; however, 14 percent consider it to not be important in delivering success to the schools strategy or vision. Another 10 percent consider its contribution moderate to their schools' strategy and vision success (figure 17).

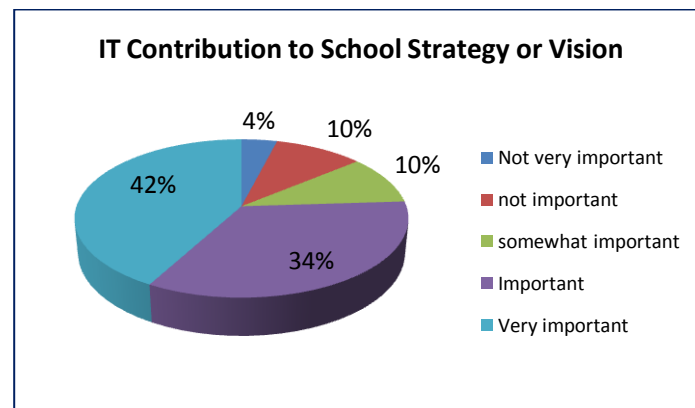


Figure 17: Main Survey: IT Contribution to School Strategy or Vision

In regards to having IT strategy as part of the overall school strategy, the responses to this question mirrors the level of awareness of senior management to the contribution of IT to school strategy and overall governance (figure 18). The majority of the respondents to this question show that they have integrated IT into their school governance to different extents (70%). However, only 30 percent have considered IT strategy an isolated effort from the overall school governance, 10 percent considered IT to be strongly part of the schools governance practices. Whereas, 20 percent consider it rarely getting involved in school governance activities, the remaining 40 percent perceive IT to be sometimes or most of the times integrated into the schools governance practices.

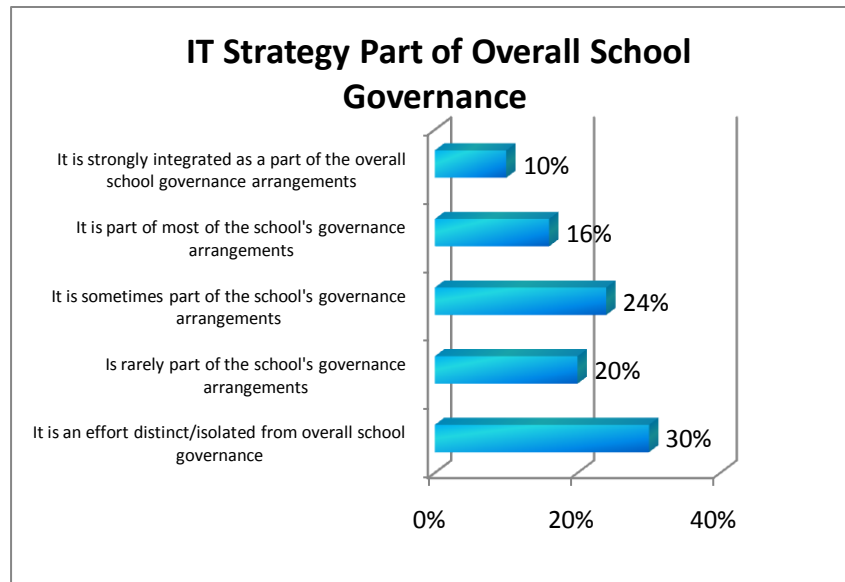


Figure 18: Main Survey: IT Strategy Part of Overall School Governance

- **Role of IT in supporting innovation, school efficiency and effectiveness**

More than three quarters of the respondents were convinced that IT is important or very important in increasing the effectiveness of schools. A further 18 percent perceived IT's contribution to school effectiveness to be "somewhat important". Conversely, about 24 percent connoted that IT is not important in contributing to schools' overall effectiveness. On the other hand, IT's contribution to schools efficiency was considered less important than its role in school effectiveness, as only 60 percent of the respondent found it to be very important or important to create school efficiency. However, another 20 percent found it to be somewhat important, whereas, 20 percent of the participants didn't consider it important in ensuring efficiency. (figure 19.)

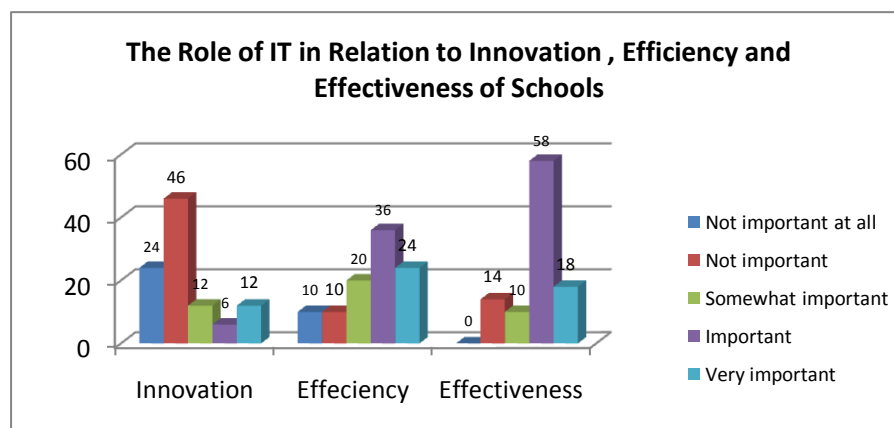


Figure 19: Main Survey- The Role of IT in Relation to Innovation, Efficiency, and Effectiveness of Schools.

The respondents were less convinced of IT's contribution to creating innovation in schools. A combined total of 70 percent considered IT's contribution to innovation not important at all or not important to schools' innovation. Less than one-quarter considered IT very important or important to schools innovation activities. Moreover, an additional 12 percent perceived it to be "somewhat important" (figure 19).

- **Importance of IT and ITG through the drivers for ITG in schools.**

The purpose of this question was to see the most important reasons for senior management and school boards to consider IT and ITG in their schools. By considering the responses to this question where multiple responses were allowed, schools had different reasons and drivers to implement IT and ITG in their organizations. Some factors seemed to be more significant than others, according to the responses. For instance, more than 84 percent of the respondents connoted that IT is important in "Attaining competitive advantage and differentiation among other schools", likewise, almost three-quarters notice that IT is essential to manage IT resources. Additionally 72 percent find that IT has a positive influence on the schools overall effectiveness. When considering the importance of IT and ITG to the school boards and senior managers regarding the five most important dimensions of ITG, the responses show good realization of senior management in terms of ITGs role in managing and controlling risks where more than half of the respondents find it important. Further, 56 percent reveal that IT delivers value to the school business, whereas, 62 percent find it important to measure IT performance. In terms of ITGs importance in ensuring the alignment between IT and business, only 46 percent considered it important. Nevertheless, almost three-quarters of the respondents find ITG important to ensure effective resource management and control. The top four drivers for implementing ITG in schools are basically emphasizing on improving efficiency and managing resources effectively.

One interesting finding observed from the data is that the least driver for ITG considered by managers is the need for IT and ITG for contributing to innovation in schools which was only determined important by less than one-quarter of the respondents. This explains the responds to the previous perception of the principals in not considering IT's contributions to innovation of significant importance as in the previous question. Hence, principals don't consider ITs contribution to innovation to be a driver for opting for ITG in

their schools as they have not yet realized how IT can enhance innovation in school business to create competitive advantage. See figure (20).

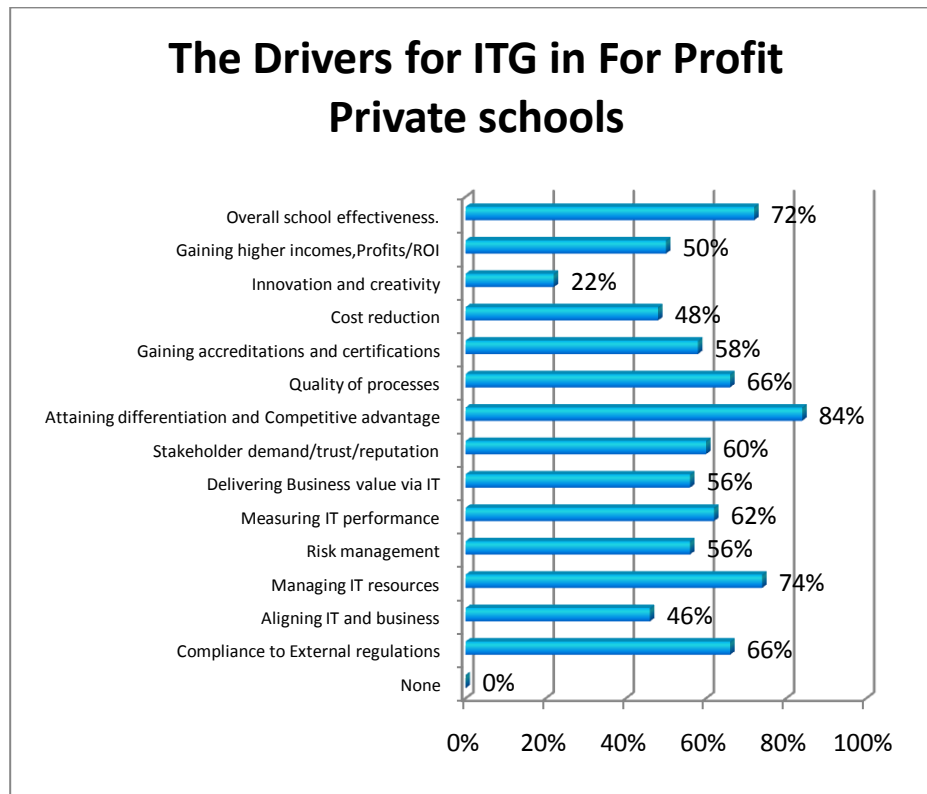


Figure 20: Main Survey- The Drivers for ITG in For Profit Private Schools

By considering the previous data, it is obvious that there is an acceptable level of realization of the importance of IT and ITG in prompting school business among school boards and senior managers, this is observant via the findings where a combined total of 86 percent of the respondents find IT to contribute successfully the schools strategy and vision. Although full realization of the role of IT in creating innovation in schools is not yet realized; its role in creating efficiency and effectiveness is highly realized by school boards and senior school managers. Additional almost three-quarters find IT governance to be part of the overall school governance practices. Moreover, all schools show to have drivers for implementing ITG within the organization regardless of the reasons perceived, which shows that there is a level of realization and understanding of the importance of IT and ITG in for-profit private school business industry.

5.2.2 The Status of the Current ITG practices in for-profit private schools

The current ITG implementations currently existing in schools will be extracted from several practices and activities that are extracted from the relevant survey questions as analyzed below:

- **The frequency in which IT is on the management's agenda and the topics discussed during board meetings.**

Only 4 percent of the school management never considers IT on their agendas, however, the vast majority consisting of 96% do although differing in the frequency which IT is discussed by management. About one-third of the respondents discuss IT during management meetings only case by case, when there is urgency for such discussions. However, 18 percent have IT on their agendas routinely, whereas a combined total of 48 percent have it most of the time or all the time within board discussions.(figure 21).

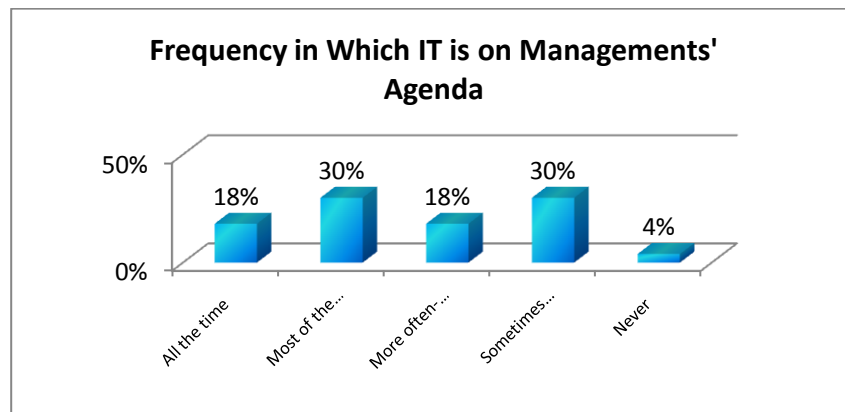


Figure 21: Main Survey: Frequency in Which IT is on Managements' Agenda

As for the topics discussed by boards regarding IT, the data shows the most significant topic discussed is “improving IT operational and functional performance as revealed by 94 percent of the respondents. This is surprising as this is a topic that should not be of much concern to top management where it is the responsibility of operational and functional level managers. This finding agrees with the findings of the study conducted by (ITGI,2009) consisting of 250 CEOs from different industries all over the world where operational performance was on the top of the list with 59% discussing the topic on board level. This could be explained in terms of the current educational context to be of utmost importance

to the management due to the fact that for most schools IT is still in the initial stages of building the infrastructures and structures. Hence requiring a lot of management decisions on improving functional and operational performance due to the cost center of high IT investments at this stage. However, for more matured schools, managers start considering more value and IT risk perspectives, hence this is obvious as the cost reduction, risk analysis and the role of IT on future business almost get an equal portion of discussion with 42% of managers discussing it at board level.

A striking observation here is that once again IT's contribution to innovation is still perceived to be the lowest even on management's agenda as only 24 percent discuss it on management level which shows why IT effectiveness and efficiency is considered higher than ITs contribution to innovation (figure 22).

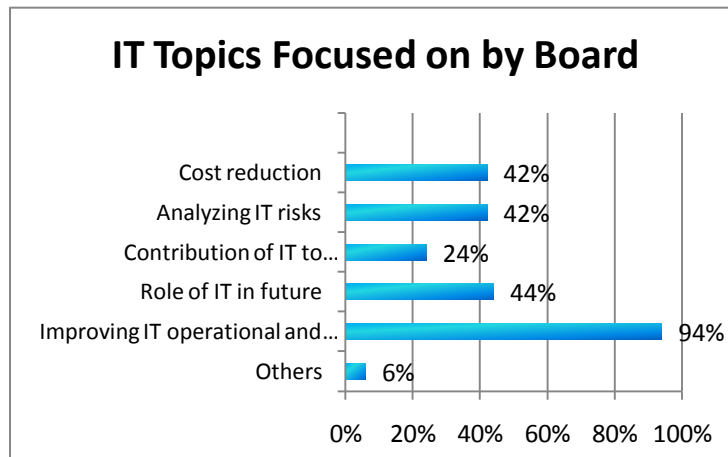


Figure 22: Main Survey- IT Topics Focused on by Board

- **Whether IT value is measured or not.**

Responses to this question mirror that although management show good realization of the fact that IT delivers value to the business, the data in hand shows lack of realization of top management on how to measure the value created via IT. This is observant in figure(), as half the respondents use traditional methods of measuring lose and gain on profits without being able to perceive returned value in IT investments precisely. About one-quarter of the respondents connoted that they have no idea on how IT value can be measured where as only 20% declared that they have more formal ways of measuring IT value via the use of balanced scorecards and KPIs that are usually part of the overall parent company

performance measurements. However, none of the participants showed any awareness of using IT BSC to measure IT value (figure 23).

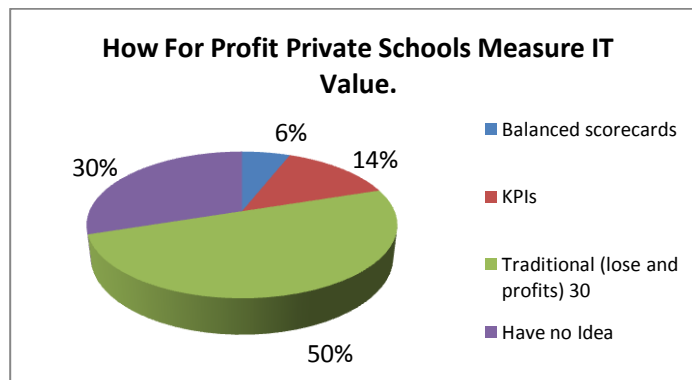


Figure 23: Main Survey- How For Profit Private Schools Measure IT Value.

- **The extent to which IT functions inform business regarding new business opportunities delivered by new technologies.**

The extent to which IT functional and operational divisions in school inform the senior management regarding new technologies that might add value to the school business or create competitive advantage forms a normal bell curve. About two-thirds of the respondents reveal that their IT divisions do inform them about new technologies that can be a business opportunity to the school business to different extents (figure 24). Where 44 percent of the senior managers reveal that they can rely on their IT division in bringing in new business opportunities via new technologies whereas, only 22 percent could rely significantly or extremely on their IT divisions in doing so. Conversely, about one-third of the respondents denoted that their IT division doesn't inform them of such opportunities or does in a very limited extent. This also illustrates the reason why senior management do not perceive IT to bring in innovation to the school business, this is due to the fact that IT still doesn't inform business about new technologies that can bring in new business opportunities to the school business. This comes in agreement with the findings of the (ITGI, 2009) in their survey to non-IT executive managers where 67 percent of the managers found IT divisions to inform them regarding new technologies that might be of significance to their business. Hence it can be concluded that regardless of the type business, it seems that a significant number up to two-thirds of managers find IT to inform the business of new opportunities through new technology trends.

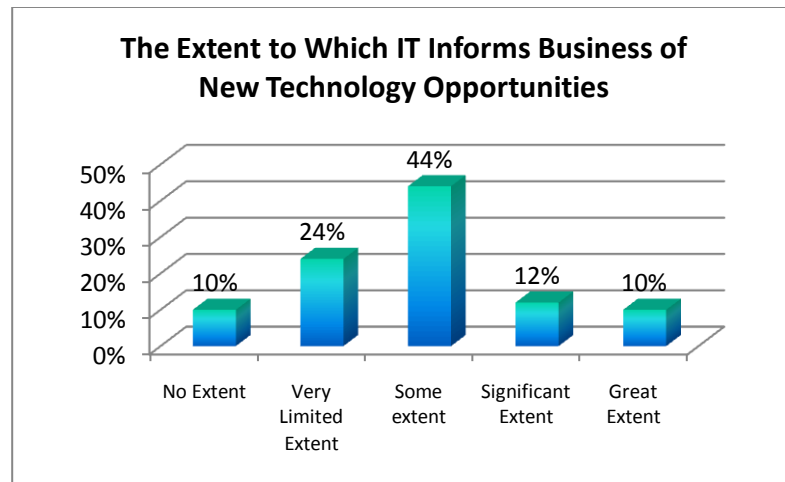


Figure 24: Main Survey- The Extent to Which IT Informs Business of New Technology Opportunities

- **The extent to which IT and business are aligned and the forms of alignment demonstrated by schools.**

Business alignment is considered one of the most important five dimensions of ITG, if not the most important (Luftman, 1999; ITGI, 2003). In reference to the drivers for effective ITG in schools as seen in figure (20) it was found that 46% have a good realization of the importance of ITG in attaining business alignment and consider ITG in their schools to reach this goal. Considering the data interpretation displayed in figure(25); all principals showed that their schools have some sort of IT business alignment. Where 12 percent reveal that IT and business strategy are strongly aligned in their schools. An equal percentage of 34 percent each connote that the alignment is moderate to strong in their schools. On the other hand, only 20 percent denoted that poor alignment between IT and business is evident in their school business.

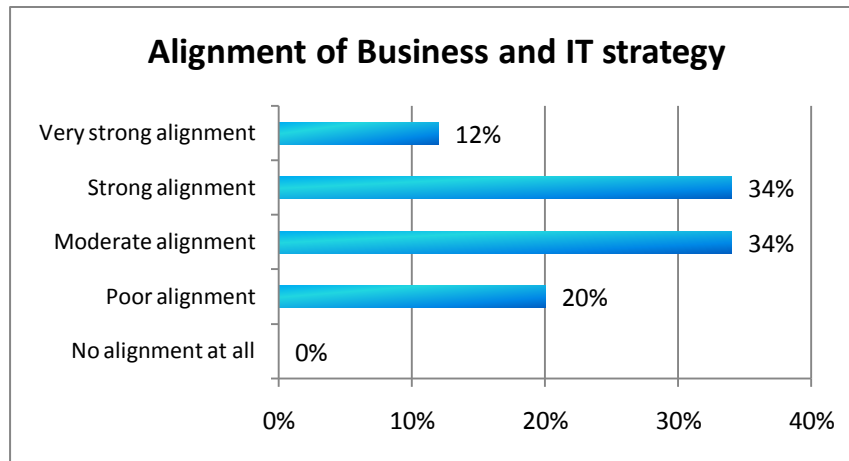


Figure 25: Main Survey: Alignment of Business and IT strategy

In regards to the forms of alignment taking place in school business, the majority of school principals indicated that an important form of business alignment is the involvement of Management in making IT decisions with 86 percent getting involved. More than half the respondents indicated that alignment tasks are done on somewhat ad-hoc basis. On the other hand a 40 percent each of the managers consider CIO being part of the management team in addition to reporting directly to the top management an important form of business alignment. The least important form of business alignment practices defined to be existent by managers was the availability of IT/Business metrics to measure IT value delivered to business. This justifies the findings discussed in figure(How IT is measured) where 80 percent of the management either only use traditional financial measures to measure IT returned value or don't have an idea on how to do so.(See figure 26)

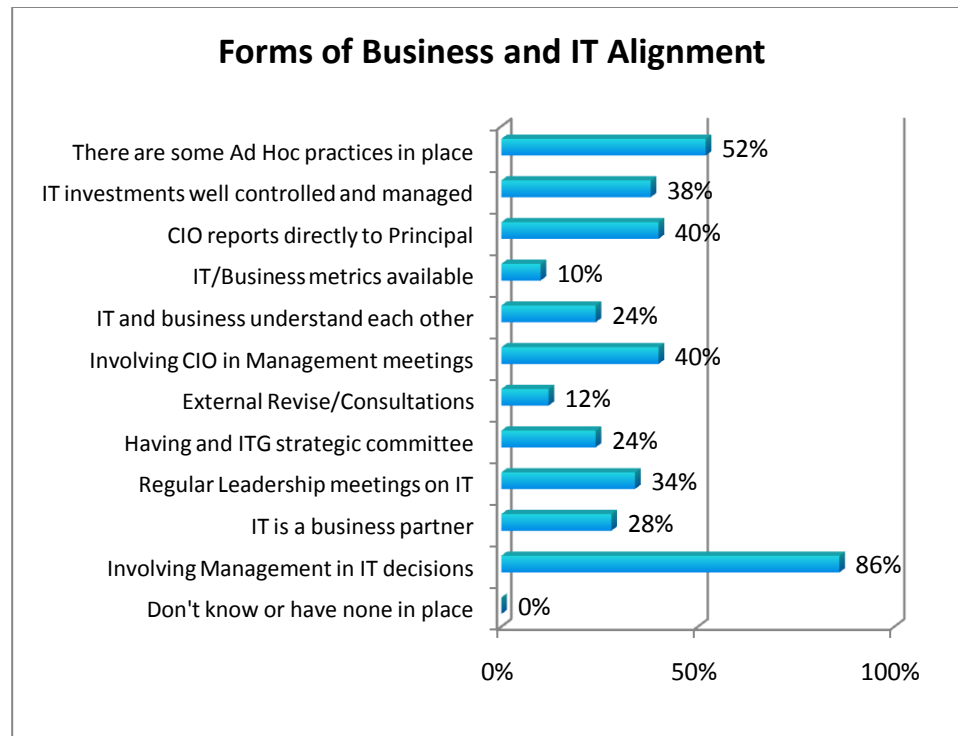


Figure 26: Main Survey- Forms of Business and IT Alignment

Another low rated form of business alignment was the “External Review/Consultations” that was only considered by 12 percent of the principals. By considering the answers to a question on where senior managements would go for guidance on ITG aspects, only 18 percent opt for external advisors this shows that there is still a lack of awareness among school managers on where to go to get support, advise or consultation regarding ITG aspects. Moreover, it also implies that ITG consultation is still not considered of significant important to school boards as a way of adding business value to the school business. Conversely, 70 percent of the managers rely on their internal CIOs, head of departments or other IT structures within their school for advice and consultation. Moreover, more than half get advice from educational authorities; such advice might be on the basic standards of IT systems and infrastructures that are required by such authorities to meet the accreditation requirements.

- **The existence of CIO in schools and the CIO is part of the management team or not.**

As seen in the business IT strategic alignment section; 40 percent of the managers consider having a CIO in the management team and having direct lines of reporting to the school Principal an important form of alignment. In a separate question measuring the level of

accountability of ITG, Principals were asked whether the CIO is part of the management team or not. As indicated in figure(27) almost half the respondents have a CIO in school that is part of the management team. However, 32 percent do have a CIO or equivalent but with no management involvement. Another 20 percent do not have a CIO in school at all.

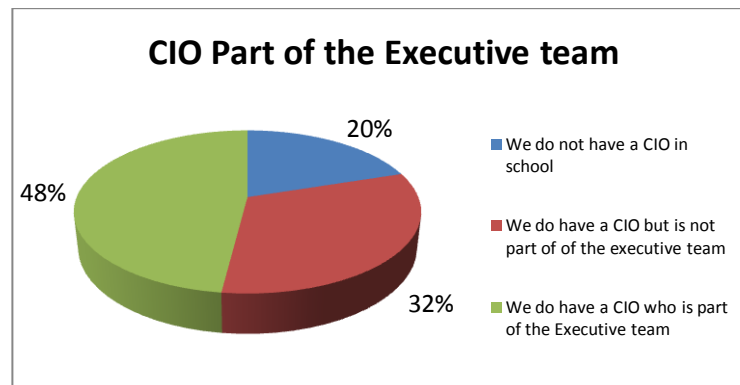


Figure 27: Main Survey- CIO Part of the Executive team

For schools having a CIO within the management team, the principals were asked to whom does the CIO report to. The vast majority of respondents reported that the CIO reports directly to the Principal. Whereas, 8 percent report to external bodies or other bodies designated by the participants figure (28).

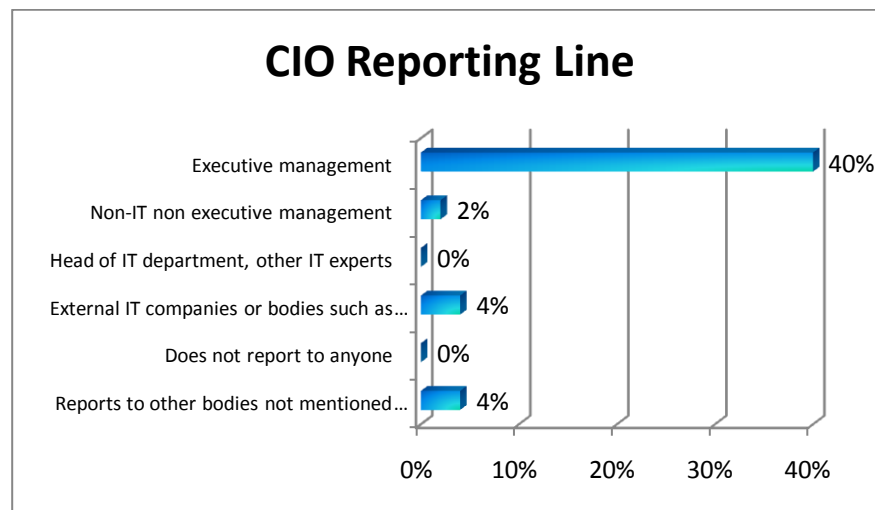


Figure 28: Main Survey- CIO Reporting Line

However, for schools not having a CIO on executive board or not having a CIO in school, the principals were asked to clarify the reasons for the absence of the CIO from the board.

The majority representing 18 percent perceived that IT decisions could be made by executives without the need for the CIO to be involved. Further, another 14 percent sees that CIO is not essential as the level of IT in these schools is still very basic, however, 10 percent find the CIO to not be at executive level, and is only responsible for operational and functional tasks, figure(29).

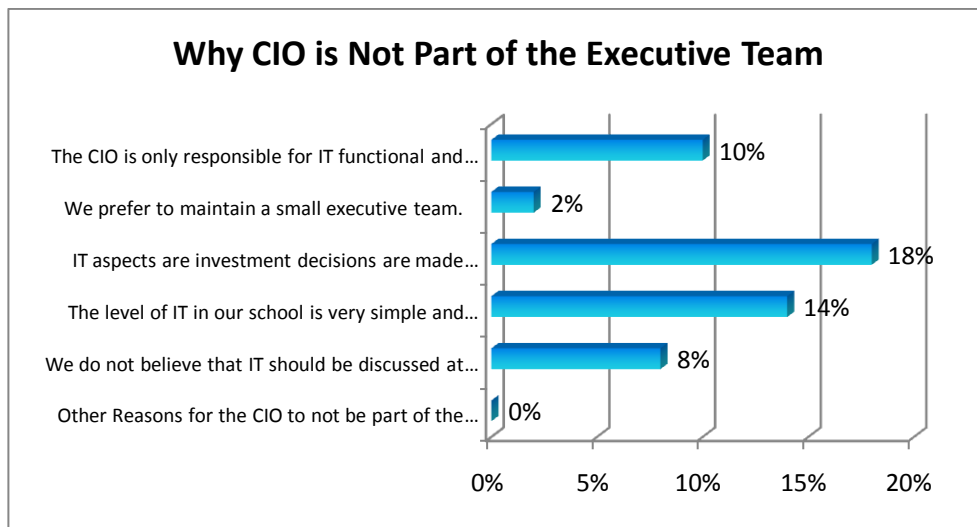


Figure 29: Main Survey- Why CIO is Not Part of the Executive Team

In regards to the influence of the CIO on Executive decisions in school, about 86 percent of the Principals denoted that the CIO has influence but at different levels. Only 8 percent reveal very strong influence of CIO, whereas, 34 percent connoted strong influence. Moreover, 44 percent revealed moderate influence. Only 6 percent found the CIO to have no influence to their decisions with another 8 percent revealing poor influence of CIO on executive's decisions (figure 30).

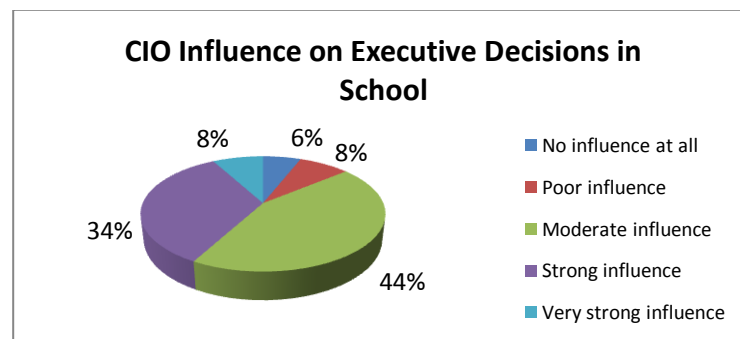


Figure 30: Main Survey- CIO Influence on Executive Decisions in School

When considering the data regarding the CIO, it is apparent that the schools have good practices regarding the existence of the CIO or equivalent members with good realization of the necessity to have the CIO on management team. Moreover, the CIO has good influence on management board in most of the schools. On the other hand, for schools not having a CIO, these schools basically have simple IT structures, or are still at early stages of foundation building, where they have not yet reached the level that they need a devoted CIO to manage and govern IT aspects in school.

- **The ITG frameworks used :**

In regards to the realization and use of ITG frameworks to ensure effective ITG implementations, the data reveals that there is a lack of awareness regarding these frameworks among the school principals. This is evident through the responses where 62 percent revealed that “they have no idea” of what these frameworks are, with another 16% not using formal or informal frameworks. Furthermore, only 16 percent use formal ITG frameworks to ensure effective ITG which are basically ITIL (14%) and ISO (2%). The reasons behind considering ITIL would probably be due to its nature that suits the for-profit private schools demands. As this framework basically ensures that quality services are in place to add value to the schools that totally rely on delivering quality services to their customers (Appendix B: ITIL).

Nevertheless, a combined total of 60 percent use other informal frameworks such as internal audits, frameworks and standards set by educational authorities as part of meeting overall school accreditation requirements, other schools also have to comply to the parent company quality assurance standards or to the partner school requirements regarding their IT implementations and performance (see figure 31).

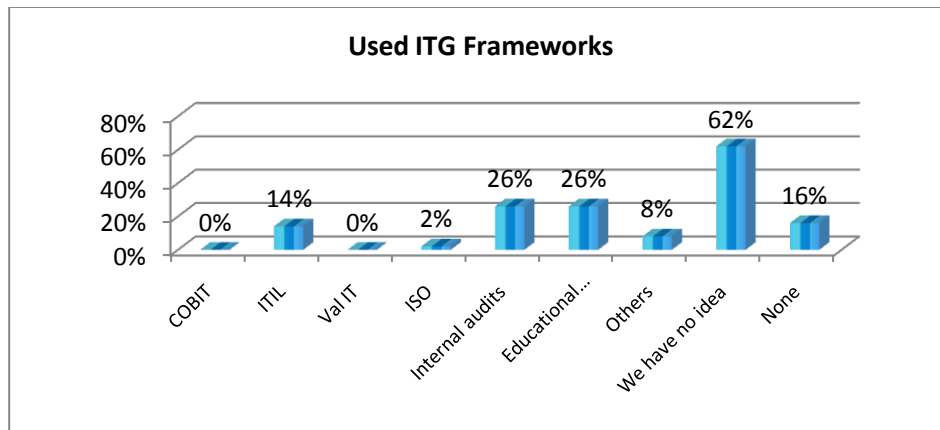


Figure 31: Main Survey- Used ITG Frameworks

- **ITG maturity level and ITG performance rates in each school.**

In terms of the ITG maturity level, an interesting finding that is apparent is that no schools have positioned their maturity level to be at zero or at five. About one-third of the respondents revealed their maturity level to be at level 1, as these school have a good level of ITG realization and practices in place but are basically in the form of ad hoc tasks, however, these schools are aware that they need to start considering ITG implementations and hence are starting to initiate their processes. Nevertheless, about 2 percent were situated at level 2(repetitive but intuitive), and 28 percent at level 3 (defined). However, only 18 percent were at level 4 (Managed and Measurable). The rationale behind not having any schools defining the level of maturity to be 5, would probably be that in level five, more formal real-realization IT value measuring metrics are required, which is not yet available in schools as seen in this section above. Moreover, not having any schools situated at zero(not existence) is logical also, as no school has indicated that they do not have any ITG practices in place or any awareness even though the terminology itself may be new to some managers (figure 32).

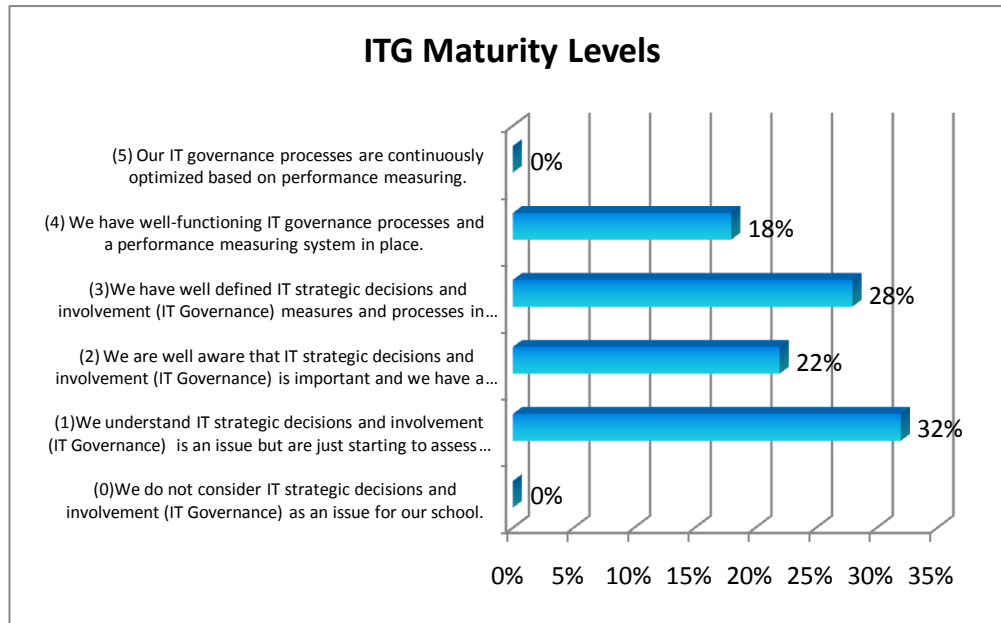


Figure 32: Main Survey- ITG Maturity Levels

The average maturity level for all participating schools was 2.36. very close to, or slightly higher than the findings of other researchers in literature regarding the ITG maturity levels of other industries, such as the study of Luftman (2003) of 25 Fortune 500 organizations which came up with a total average of 2.17. Whereas, in their study, De Haes and Van Grembergen (2006) found that the Belgian Financial Services sector on average has a maturity level of 2.05. It should be mentioned here, that the comparison is not very accurate, as the study of Luftman was basically built on a measurement instrument that only concentrated on Business/IT alignment. In his instrument, ITG was just one clause of the measurement sections; in addition, Luftman has built his findings on an instrument that was not yet validated at that time (De Haes & Van Grembergen, 2006). On the other hand, for the findings of De Haes and Van Grembergen, the model they used was built around 33 IT governance practices they have defined in a Delphi Research composed of 29 senior IT and senior business professionals from the Belgian financial organizations. Their maturity model was based on the generic maturity model approved by the (ITGI, 2003). Therefore, although the final findings of maturity are scaled to fit within the generic maturity model adapted by the ITGI organization, the internal setup of the measurement instrument is customized to suit the Belgian financial organizations settings, whereas, for this research the context was built around the perceptions of principals via surveys in the for-profit educational context in the UAE. Regardless of these, differences in context and

conduct, the comparison may be considered valid due to the fact that other practical ITG mature measurements are scarcely available in literature for other industries in general and for the educational context in particular. As available research regarding ITG in education was basically theoretical or empirically built on finding best methods of implementing ITG in this context hence rarely specifying the current maturity level of these higher educational institutions (Coen & Kelly, 2007; Yanosky & Borreson, 2008; JISC, 2007; Bhattachariya & Chang, 2007). However, in a study conducted by Yanosky and Borreson in 2008 regarding the processes and politics of ITG in Higher education, where they conducted a study consisting of 438 CIOs and Executives from different Higher educational institutions within 22 Canadian institutions. The study revealed that almost 60% of the respondents identified their maturity level to be 1-2 over the six-level scale, whereas, about 16% chose the highest levels of 4 and 5.

Using Weill and Ross's IT performance measurement (Weill & Ross, 2005)(see Appendix E: Assessing ITG performance Matrix) to measure the level of IT performance away from any bias or subjectivity that might occur in having school principals place their schools on the ITG maturity according to their perceptions. School principals were asked to complete two matrixes on the survey to choose the outcomes and the influence of ITG on cost effectiveness, school growth, assets utilization, and effective use of IT for business flexibility. Where they were given a scale of five levels starting from (1 not important), to (5 very important)(See Appendix(A) for a full description of Weill and Ross IT Performance Matrix). The responses were then fed into the matrix and the ITG performance was calculated for each school. The average performance for all participating schools was 50.5% which is slightly higher than the overall average. Hence it agrees with the average ITG maturity found to be (2.36). However, when comparing this value to the benchmarking value of (Weill & Ross, 2005) in their study which was 69%, it is found that it is lower than this value.

It can be concluded from the ITG status in schools that there are a number of good ITG practices in school. These are evident in the fact that IT is frequently on management's agenda regardless of the frequency of having it occurring as perceived by (96%) of the participants, where different IT aspects are discussed especially the ways in which IT functions and operations can be improved. In addition, 90% of the managers find IT to inform the business of new technology that might have business value regardless of the

extent to which this is done. Likewise, a combined total of 80 percent reveal IT and business to be aligned even though this perception varies in the level of alignment. However, all schools have some practices that demonstrate the existence of IT business alignment to some extent. In regards to the existence of a CIO as part of the management team in school, 48 percent of the schools did have this practice in place with 94% showing that the CIO or Head of IT department or other experts do have influence on board decisions even though they vary in power. ITG maturity levels are acceptable and are aligned with other benchmarks available in literature for different industries. Conversely, there are some ITG practices that still remain weak which are the lack of existing IT business value measurements, as only 16 percent have some basic forms of measurement metrics in place. In addition, the use of formal frame works is also very weak with only 16 percent are using simple forms of ITG frameworks.

5.2.3 The factors affecting ITG effectiveness (Enablers, inhibitors).

Principals were required to define the inhibitors they encounter in the current settings that hinder the implementation of effective ITG in schools. Only 4 percent of the respondents declared that they do not have any inhibitors hampering them from realizing the full value from the investments made in IT. However, the remaining 96% do encounter barriers that prevent to some extent the realization of the full IT value to their schools. Among these inhibitors, the most significant one selected by 64 percent of the school principals was the absence of IT business measurement metrics that help in measuring the returned value of IT. This comes in agreement with the percentage of respondents of 50 percent having traditional profit loss and gain methods of measurements and another 30 percent having no idea on how to measure IT returned value.

Nevertheless, 62 percent of school principals also perceived the “Lack of external advice and consultation regarding ITG” to be a significant inhibitor. This agrees with the percentages found in previous questions related to this point. As only 18% of the respondents would seek advice and consultation from external advisors whereas, only 12 percent perceived getting advice from external auditors, consultants a form of alignment between IT and business. This is probably due to the fact that ITG is still new to schools, and executive management still lacks realization and understanding of the real benefits, it

could return to their school business where more than a half of the principals connoted that this is a problem. Most of the schools Principals consider the “educational “side of the business and are not aware of other horizons that might help in increasing their business efficiency such as ITG. Hence, not realizing the need for external advisors and experts in the field to provide the proper guidance and advice for better ITG practices that suitable for the school’s current settings. As schools become mature regarding their IT structures and processes, the need for such advisors will become more evident.

Another inhibitor with strong influence is the Lack of communications between business, IT and Educational settings, which is revealed to be hindering the ITG processes in school by 56 percent of the school principals. This also can be explained due to the fact that there is no communication language between the three different majors, business people understand business, IT technical, and educational experts are knowledgeable about enhancing education. When it comes to the use of technology to add value to business in an educational background, links and communications are very hard if not impossible, as IT doesn’t understand what business needs neither does business understand what IT can do, and both should be tailored to suit the educational business context.

Moreover, more than a half of the respondents considered “lack of the existence of easy solutions” to be a barrier. This is probably due to the fact that due to the lack of business, IT communication, lack of managements awareness regarding IT and ITG value, lack of awareness regarding getting external advise, hence, schools are finding it difficult to find suitable IT solutions that meet their business demands.

In the same frame, almost a half of the respondents find “Lack of ITG training” an obstacle, this aspect also works in the same direction as the other most selected inhibitors that are all concentrated around “management’s awareness of ITG”. It is apparent that managers find it important to bridge the gap between IT, business, and Educational leadership via good training on ITG.

By considering these factors that are the most selected, it is evident that they are all of a “managerial” nature, as they basically crystallize around the fact that there should be more management awareness in ITG which will lead to better business, IT , and education communication, finding better IT solutions, and so forth. This could be achieved by gaining

more training, and hence, being able to tackle the right advisors and experts in the field of ITG to increase business value via IT.

Other barriers were defined in different rates, but the most interesting one was the “Lack of management’s commitment and support” which was rated 18 percent only. This might be valid due to the fact that managers themselves were answering the survey, in addition to the fact that if more awareness and realization of ITG was available to managers, they would not form an obstacle in perceiving business value through IT.(figure(33))

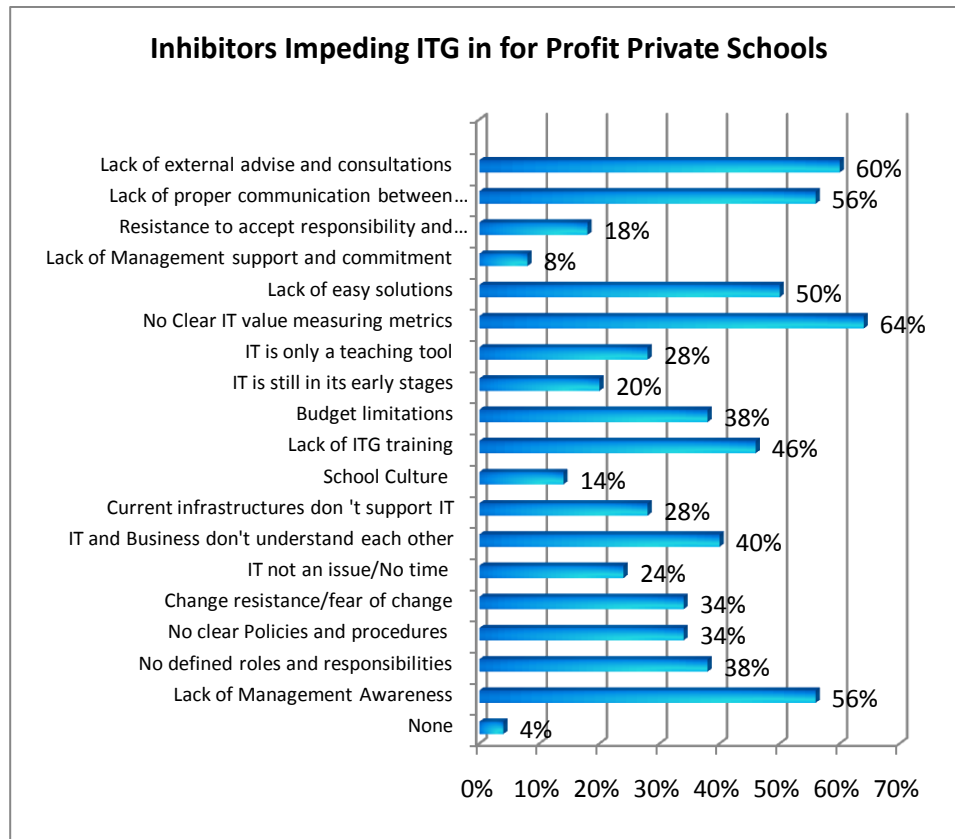


Figure 33: Main Survey- Inhibitors Impeding ITG in for Profit Private Schools

In regards to the enablers that principals perceive to help in ensuring better levels of ITG implementations in their schools if they were made available, the highest ranked enablers to effective ITG were the management’s awareness, support, and commitment perceived by 78 percent of the respondents. This was followed by another 76 percent seeing that the availability of professional IT business value measuring metrics is a significant factor allowing for better ITG. This is rational as the most significant inhibitor selected by 64 percent of the school principals was the absence of IT business measurement metrics that help in measuring the returned value of IT. In addition to the

percentage of respondents of 50 percent having traditional profit loss and gain methods of measurements and another 30 percent having no idea on how to measure IT returned value; hence the principals find that this factor if available could positively influence the effectiveness of ITG in their schools.

An interesting finding in the data is the level of perception of the alignment of IT and business strategy in enabling effective ITG in school business. It is surprising that only 22% of the managers have selected this to be an enabler to good ITG, however (68%) revealed that achieving business alignment is an outcome of good ITG (figure 34). Likewise all the managers have perceived that there is some form of alignment in their schools (Figure 25). Thus, it can be concluded that managers find IT alignment to be a process that is basically done on ad-hoc basis during day-to-day management tasks, in addition to being a result of good ITG practices. However, they do not see that if IT and business are well aligned, this will result in better ITG practices in school, as a matter of fact they find business and IT alignment to be a result of good ITG not an enabler to it. The level in which managers perceive different factors to enable effective ITG vary, this can clearly be observed in figure(34).

Schools have different inhibitors and enablers affecting their level of ITG. As denoted in literature, by minimizing inhibitors and maximizing enablers, schools can gain higher effectiveness and efficiency (Luftman, 1999, Luftman et. al. 2000). Hence the schools IT performance and perceived value is hindered from full realization due to the existence of inhibitors which is explained thoroughly in the next section.

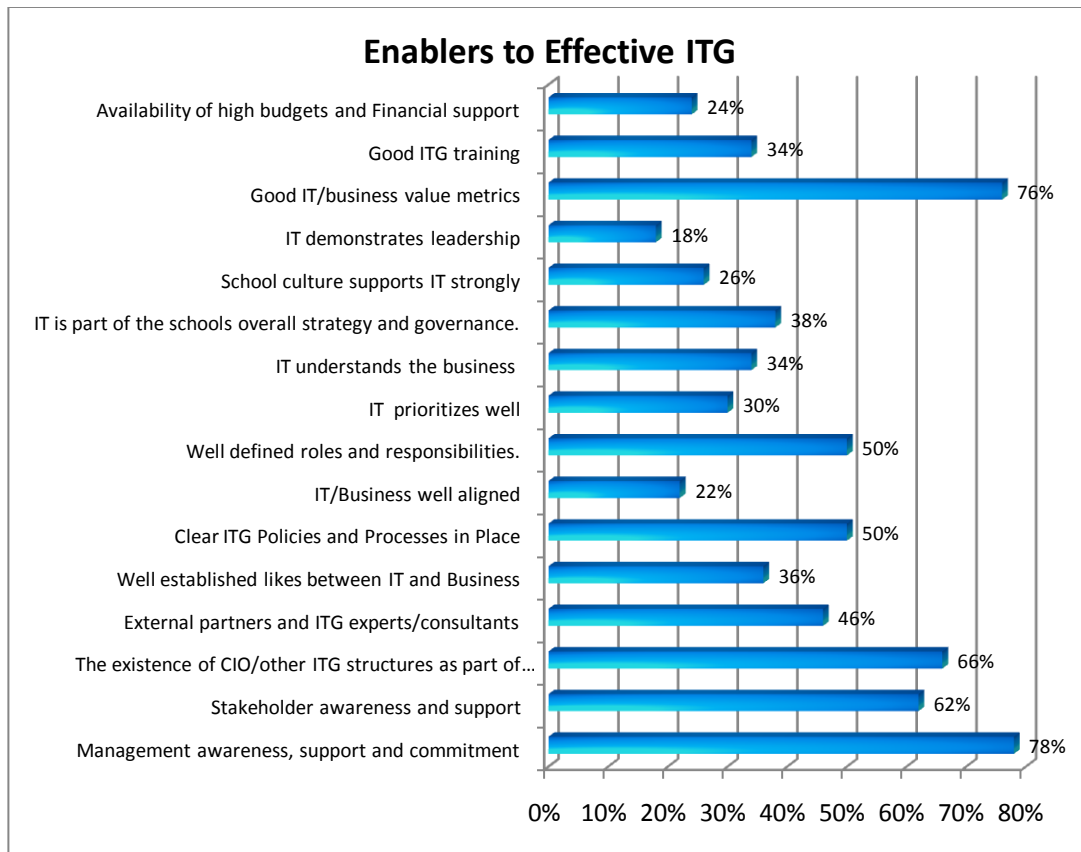


Figure 34: Main Survey- Enablers to Effective ITG

5.2.4 IT outcomes: this includes the level of satisfaction and value generated by IT

If management's awareness and the status of ITG in schools were acceptable, the perceived outcomes of effective ITG should be evident.

The perceived outcomes of effective ITG implementations will be measured via the following :

- The effect of ITG on creating competitive advantage and creating value (Perceived value created by IT and Effective ITG).
- The extent to which IT investments create value to the school.
- The degree to which IT performs within the expectations of senior management

- **The effect of ITG on creating competitive advantage and creating value (Perceived value created by IT and Effective ITG).**

School principals were requested to define the perceived value created by IT investments in their schools where they were allowed to choose all what is applicable and to define other returned values if not mentioned. When considering the most important revealed value created through IT in for profit private schools, 90 percent of the senior school managers see that IT implementation help in increasing the quality of education hence resulting in higher school reputation. Moreover, in the same direction 86 percent see that IT helps in gaining stakeholder trust, satisfaction, and contentment. Likewise, 82 percent see that IT implementations are adding value to schools by allowing them to meet the requirements of educational authorities and boards. Another 80 percent sees IT to return value by forming a new way of differentiation and achieving competitive advantage over other schools.

In a second level of importance in terms of value perceived is by allowing more effective school processes to be in place(72%), increasing staff retention rates (70%), allowing better IT business alignment (68%), better quality services(66%), higher student enrollment rates(62%). Conversely, the lowest ranking value perceived items were stakeholder contentment (16%), the value of ITG in declaring roles and responsibilities (18%), creativity and innovation (20%).

Some interesting trends exist in this data, as all the high ranking perceived value returned from IT are basically “Educationally” oriented rather than being more business oriented. Although indirectly they do have influence on the business by creating value through profit increment or cost reduction. Principals were not able to realize this fact explicitly, which is obvious in the perception of IT value in reducing costs (38%) and increasing profits(36%). However, via the increased enrollments (62%), reduced staff turnover (70%), quality services (66%), higher reputation via quality education (90%), stakeholder trust (80%); schools will definitely increase profits and reduce costs. This once again reflects the lack of management’s awareness regarding business and ITG aspects, hence focusing only on educational leadership and value returned implicitly via improving education services using IT to create value.

Another striking fact is that although managements perceptions of the returned value through IT in terms of the main aspects of ITG(IT business alignment, risk

management, resource management, value delivery and performance measurements), is relatively low for most of the ITG areas. The perceived value is relatively high for IT/Business alignment (68%) compared to the other areas. This agrees with the managers perception of the importance of IT/business alignment in their schools as seen earlier in this section (see figure 25). This is an indicator that managers still do not have a full realization of the value of IT and its potentials to bring in value to the school business. Once again this might be explained by the identification of lack of ITG training, and lack of management's awareness regarding ITG to be barriers to the perception of this value.

Innovation and creativity as a value added to schools through IT is once again perceived to be of relatively low in importance here which also agrees with the previous findings of being the lowest even on management's agenda. As only 24 percent discuss it on management level and about 46% of the principals seeing that IT does not contribute to school's innovation. (See figure 35)

In general, the lack of full realization of IT potentials in returning business value to schools can be due to the absents of IT value measuring metrics and due to the defined inhibitors that impede schools from realizing the actual value that IT can return to their school business.

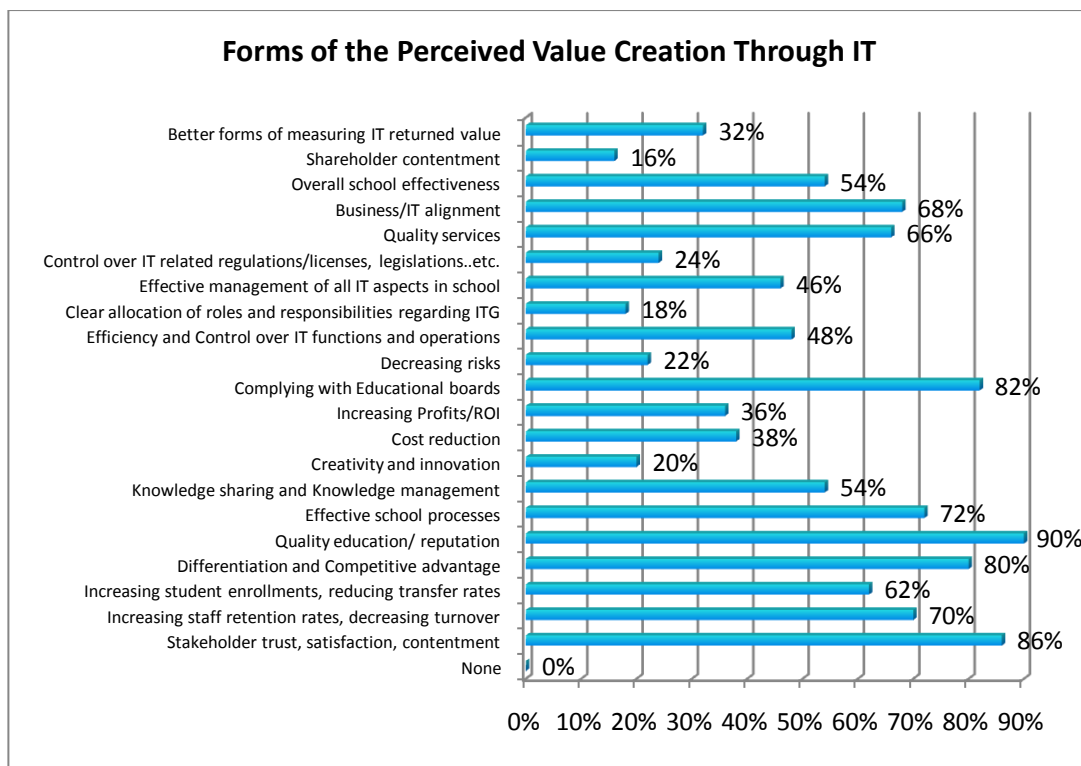


Figure 35: Main Survey- Forms of the Perceived Value Creation Through IT

- **The extent to which IT investments create value to the school.**

About 76 percent of the respondents do believe that IT investments create value to the school business although varying in level of perception of this created value. Almost three-quarters of the respondents agree or strongly agree that IT investments add value to the school business. Only 6 percent reveal that they slightly agree that IT investments have an impact on the school business. However, a combined total of 24% disagree or strongly disagree that IT investments have added any value to their school business.

The results here are interesting, as a high percentage of 76% believe that their IT investments have brought value to the school business, what is surprising is that most of these schools have no professional IT/business metrics in place to measure IT value. In fact about half the principals denoted that they use traditional methods of value measurement metrics depending on profit lose and gain, whereas, another 30 percent indicated that they have no idea how to measure IT returned value (figure 23). In addition to about 64 percent declaring that “No formal IT value metrics available” is barrier impeding ITG implementations in their schools (figure 33). This contradiction can be interpreted by considering the first part of this subsection (Perceived value created by IT and Effective ITG), where school principals basically consider the perceived values to be more intangible, and in a more educational benefit return context. Such as indirectly increasing profits by increasing student enrollments, reducing staff turnover rates, better quality education resulting in higher reputation, better compliance with educational authorities and so forth, which all indirectly bring in higher profits to the school business. The principals’ perceptions of the created value once again is interpreted from an educational leadership perspective; as some are not closely involved with financial aspects of profit and loss, neither are they involved in knowing how IT investments. The returned values from such investments, are they individually measured or are they part of the services and facilities budgets and so on Figure(36). It may be proper to consider the 24 percent who disagree that IT investments create value to their business, to be within the schools that declared that they have no idea on how to measure the value returned by IT which represent about 30 percent of the participants (figure 23).

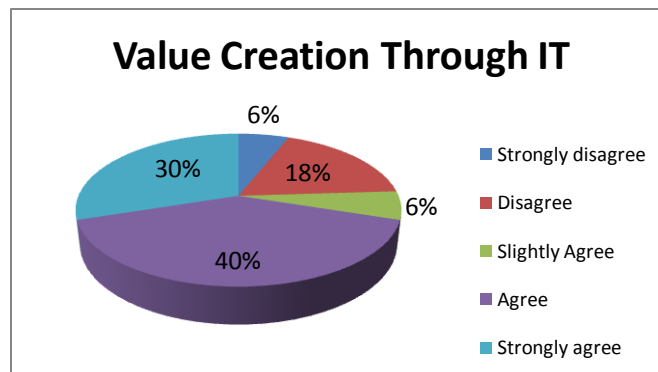


Figure 36: Main Survey- Value Creation Through IT

- **The degree to which IT performs within the expectations of senior management**

In reference to figure(37), an acceptable normal bell curve regarding the perception of principals regarding IT performance meeting the schools business expectations is shown. The vast majority believe that IT performs within their expectations. Moreover about one-third believe that it highly performs within their expectations in addition to a slight 2 percentage of principals indicating that their IT performance has outperformed their expectations. Conversely, 18 percent find IT performance to be meeting their expectations slightly. None of the schools revealed that IT performance was underperforming their expectations.

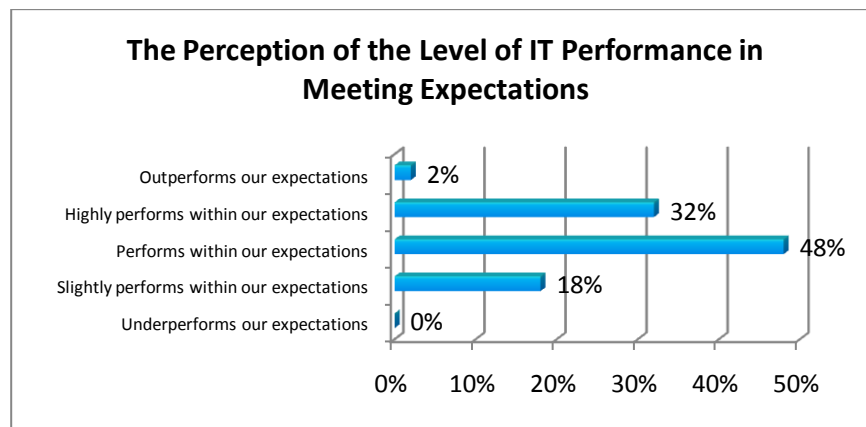


Figure 37: Main Survey- The Perception of the Level of IT Performance in Meeting Expectations

By comparing these results with the results of the principals perceptions of business value returned via IT investments (figure(36)); schools whose IT performance is barely meeting their expectations(18%) have a valid reason to perceive that they disagree that IT investments are bringing in value to their school business (26%). Moreover it is also rational that schools with high and outstanding performing IT (34%) also perceive IT investments to strongly bring in business value (30%). However, schools which have their IT performance moderately perform within their expectations (48%) are more likely to slightly agree or agree that their IT investments are bringing in business value (46%). .(see figure(38)).

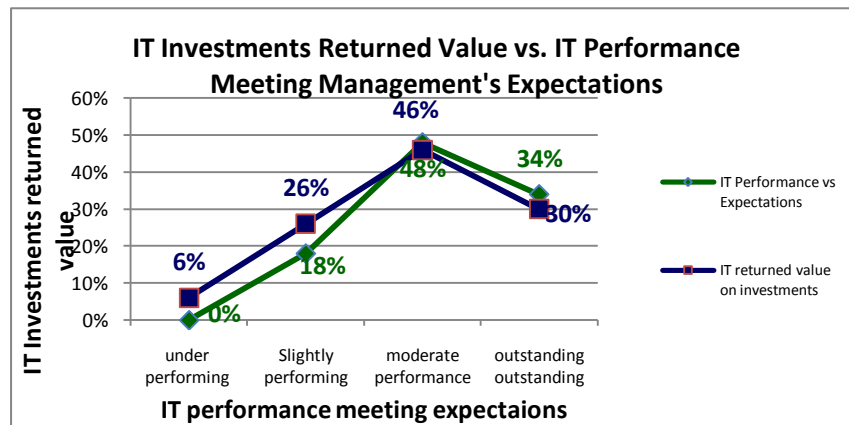


Figure 38: Main survey- IT Investments Returned Value vs. IT Performance Meeting Management's Expectations

Moreover, correlations have been found between IT Performance expectations, ITG performance rate, and the created value on IT investments. As it has been found that there is a statistically significant positive relationship between the expectations on the created value through IT investments and the level in which IT performance meets the organizations expectations ($r=0.562$, $p<0.01$). In addition when also comparing the ITG performance rate of schools using (Weill& Ross,2008) performance matrix with the created value through IT investments; it has also been found that there is a statistically positive relationship between these two factors($r=0.525$, $p<0.01$).

Hence it can be concluded that the level of IT performance in meeting organizational expectations and the level of ITG performance rate does affect the created value returned on IT investments

To summarize the IT outcomes as a form of value creation in school business by considering the perceived returned value as principals conceive it, the value returned through IT investments, and the perception of IT performance in meeting the overall school expectations is at an acceptable level.

The analysis of the findings show that all schools perceive value from IT to some extent, however, schools have different forms of interpreting the perceived value they realize from their IT and ITG implementations. The vast majority of schools perceive this returned value in a more educational oriented manner which indirectly results in increased business value. Nevertheless, this reflects the lack of awareness of management in most cases to directly perceive the level of IT value on their business, this could be due to the fact that most principals are specialized in educational leadership with no or little awareness of IT or business aspects. In addition to that, more than half the principals denoted that they use traditional methods of value measurement metrics depending on profit lose and gain. Whereas, another 30 percent indicated that they have no idea how to measure IT returned value (figure (23)). In addition to about 36 percent declaring that “No formal IT value metrics are available” is a barrier impeding ITG implementations in their schools (figure(33)) this explains why they were not able to directly perceive the value of IT in increasing profits, and reducing costs. Other returned values of IT and ITG such as risk management and the value of IT in creating innovation requires more professional realization and awareness of ITG aspects among managers which has not yet formulated in some schools yet.

A high percentage of principals perceive that their IT investments have brought value to the school business(76%) regardless of the level of the value return. Moreover, all schools do believe that IT is performing within their expectations to different extents. It has also been found that the level of IT performance in a school closely relates to the returned value on IT investments, for instance the higher the IT performance meets the school expectations; the more return on IT investments is realized.

5.2.5 Statistical analysis of main survey.

School principals were required to enter their perception on the level of ITG maturity they conceive their schools to be situated at given a six level scale starting from (0 not existent) to (5 optimized). In addition, (Weill and Rose, 2005) ITG performance measurement was

used to calculate the ITG performance using two matrixes built on the perception of the outcomes and influence of ITG on cost effectiveness, growth, asset utilization and business flexibility.

This was to examine that the principals choices of the schools maturity level is closely related to the calculated value gain from the responds to the two matrixes of Weill and Ross 2004. Hence this helps to ensure that the ITG maturity level selected agrees with the IT performance rate calculated thus ensuring responses to the ITG maturity level were in agreement with the calculated IT performance rate .

Therefore, a t-test was conducted on the two variables (ITG maturity levels, and ITG performance rates) to test the differences in Principals responds to the two questions. It was hypothesized that there is no differences between the ITG maturity perceptions and the ITG performance rates statistically where it was found that the p-value of the two independent sample t-tests is 0.342 (sig at $\alpha(0.05)$) this means that there is no difference between both answers statistically. Hence, both variables can be used interchangeably as an independent value in the conducted statistical analysis of this section. (Table 10)

Table 10: Independent Samples Test(IT maturity level and ITG performance rate)

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
VAR00009 Equal variances assumed	14.795	.005	.955	98	.342	.18370	.19237	-.19804	.56544
Equal variances not assumed			.955	87.683	.342	.18370	.19237	-.19861	.56601

A test to see if the level of ITG maturity has any affects on the expected created value through IT investments, and ITG performance expectations was statistically conducted. It was found that there is a statistically significant positive relationship between the ITG maturity level and the level of the perceived IT performance to meet organizations expectations($r=0.605$, $p<0.01$) and a statistically significant but weaker relationship between the ITG maturity level and the created value of IT investments($r=0.598$, $p<0.01$). Table(11a) . Hence, it can be concluded that the level of ITG maturity is related to the value created for school business via IT. Therefore, schools with a higher ITG level are expected

to perceive higher values on IT investments and IT performance is expected to meet the organizations needs at high levels.

Table (11a): correlations between ITG maturity and (Return on investments, IT performance expectations)

		ITGMaturity	ITGoutcomes	Q3.1ITinvesValues	Q3_3ITPerfExpectation
ITGMaturity	Pearson Correlation	1	.688**	.598**	.640**
	Sig. (2-tailed)		.000	.000	.000
	N	50	50	50	50
ITGoutcomes	Pearson Correlation	.688**	1	.938**	.814**
	Sig. (2-tailed)	.000		.000	.000
	N	50	50	50	50
Q3.1ITinvesValue	Pearson Correlation	.598**	.938**	1	.562**
	Sig. (2-tailed)	.000	.000		.000
	N	50	50	50	50
Q3_3ITPerfExpectations	Pearson Correlation	.640**	.814**	.562**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	50	50	50	50

** . Correlation is significant at the 0.01 level (2-tailed).

In an attempt to study the four independent (Management awareness, ITG status, and Factors affecting ITG) and their affect on the (ITG outcomes) where each category contains the following factors:

- Managements awareness and realization of the vitality of IT which covers:
 - Overall importance of IT in supporting the schools vision and strategy.
 - The extent to which IT is part of the overall school governance.
 - Role of IT in supporting innovation, school efficiency and effectiveness
 - Importance of IT and ITG through the drivers for ITG in schools
- Current ITG status in schools which provides an overview of the schools advancements in ITG. This covers the following parts of the survey:
 - The frequency in which IT is on the management's agenda.
 - Whether IT value is measured or not.
 - The extent to which IT functions inform business regarding new business opportunities delivered by new technologies.
 - The extent to which IT is part of the overall school strategy.

- The extent to which IT and business are aligned ITG maturity level and ITG performance rates in each school.
- The factors affecting ITG effectiveness (Enablers, inhibitors).
- IT outcomes: this includes the level of satisfaction and value generated by IT which includes:
 - The extent to which IT investments create value to the school.
 - The degree to which IT performs within the expectations of senior management

For each factor, quantitative data was considered while discarding data of a qualitative nature that were already used in discussions and arguments in other section. Such data include:

- The main topics discussed by the management.
- The existence of CIO in schools and whether the CIO is part of the management team or not.
- The ITG frameworks used
- The forms of alignment demonstrated by schools.

These factors will be tested individually for each category to see their correlations with the ITG outcome factors and/or the ITG maturity level, and then they will be tested as whole categories with the outcomes statistically.

The first test will consider testing individually all the factors in each category to test the factors mostly affecting the perceived outcomes from ITG.

For category one the awareness of IT consisting of the managements awareness and realization of the value of IT in terms of creating efficiency, innovation, effectiveness, alignment with strategy, and being part of the overall school governance were tested for relations with IT outcomes and the ITG maturity level . The results were found to have a statistically significant relationship between the ITG maturity level and the success of IT in delivering the school's strategy($r=0.625$, $p<0.01$), the importance of IT's role in innovation($r=0.659$, $p<0.01$) and with IT being part of the overall school governance ($r=0.659$, $p<0.01$). However, there is no statistically significant relationship between the IT governance maturity level and the role of IT in creating efficiency or effectiveness in schools Table (11).

Table 11: Outcomes and Management's awareness

		ITGMaturity	ITGoutcomes	BzStrategy	IT_Invation	Effeciency	Effectiveness	ITStratOverallGove
ITGMaturity	Pearson Correlation	1	.688**	.625**	.659**	.225	.186	.669**
	Sig. (2-tailed)		.000	.000	.000	.116	.195	.000
	N	50	50	50	50	50	50	50
ITGoutcomes	Pearson Correlation	.688**	1	.451**	.530**	.177	.112	.515**
	Sig. (2-tailed)	.000		.001	.000	.220	.440	.000
	N	50	50	50	50	50	50	50
BzStrategy	Pearson Correlation	.625**	.451**	1	.440**	.043	.059	.665**
	Sig. (2-tailed)	.000	.001		.001	.767	.683	.000
	N	50	50	50	50	50	50	50
IT_Invation	Pearson Correlation	.659**	.530**	.440**	1	.186	.190	.458**
	Sig. (2-tailed)	.000	.000	.001		.197	.185	.001
	N	50	50	50	50	50	50	50
Effeciency	Pearson Correlation	.225	.177	.043	.186	1	.405**	.425**
	Sig. (2-tailed)	.116	.220	.767	.197		.004	.002
	N	50	50	50	50	50	50	50
Effectiveness	Pearson Correlation	.186	.112	.059	.190	.405**	1	.262
	Sig. (2-tailed)	.195	.440	.683	.185	.004		.066
	N	50	50	50	50	50	50	50
ITStratOverallGove	Pearson Correlation	.669**	.515**	.665**	.458**	.425**	.262	1
	Sig. (2-tailed)	.000	.000	.000	.001	.002	.066	
	N	50	50	50	50	50	50	50

Secondly, by testing the relationships between the second category (ITG status) and the ITG maturity level; it is found that there is a statistically significant strong relationship between the ITG maturity level and the extent to which IT is on management's agenda($r=0.773$, $p<0.01$). Moreover, there is a statistically significant but weaker relationship between ITG maturity level and the level in which IT and business strategies are aligned($r=0.696$, $p<0.01$). Additionally a relatively weak statistical positive relationship exists between the ITG Maturity level and the level in which IT informs the school regarding the potential opportunities enabled by new technologies($r=0.487$, $p<0.01$). Conversely, the results reveal that there is a statistical significant but weak relationship between the ITG maturity level and the frameworks used in schools($r=0.359$, $p<0.05$)(Table12).

Table 12: correlations between ITG maturity and outcomes vs. ITG status

		ITGMaturity	ITGoutcomes	informsBz	TonAgenda	ITandBusStrategy
ITGMaturity	Pearson Correlation	1	.688**	.487**	.773**	.696**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	50	50	50	50	50
ITGoutcomes	Pearson Correlation	.688**	1	.378**	.553**	.634**
	Sig. (2-tailed)	.000		.007	.000	.000
	N	50	50	50	50	50
informsBz	Pearson Correlation	.487**	.378**	1	.368**	.506**
	Sig. (2-tailed)	.000	.007		.009	.000
	N	50	50	50	50	50
ITonAgenda	Pearson Correlation	.773**	.553**	.368**	1	.590**
	Sig. (2-tailed)	.000	.000	.009		.000
	N	50	50	50	50	50
ITandBusStrategy	Pearson Correlation	.696**	.634**	.506**	.590**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	50	50	50	50	50

** . Correlation is significant at the 0.01 level (2-tailed).

Finally, when testing statistically for relationships between ITG maturity levels and the third category of factors affecting ITG maturity level consisting of enablers and inhibitors. The results showed that there is a statistically significant strong positive relationship between the ITG maturity level and the enablers to good ITG (0.743, $p < 0.01$). Conversely, the results also showed that there is a weak but significant statistical relationship between ITG maturity levels and the inhibitors impeding effective ITG in schools ($p = -0.403$, $p < 0.01$). These findings agree with (Luftman, 2000) where he mentioned that in order to achieve higher IT business alignment, organizations need to minimize inhibitors and maximize enablers. Hence it is obvious from the results that higher enablers lead to higher levels of ITG maturity, whereas, the more inhibitors there are the lower the maturity level. (Table 13).

Table 13: Correlations between Factors and ITG and outcomes

		ITGMaturity	ITGoutcomes	EnablerTotal	BarTotal
ITGMaturity	Pearson Correlation	1	.688**	.743**	-.403**
	Sig. (2-tailed)		.000	.000	.004
	N	50	50	50	50
ITGoutcomes	Pearson Correlation	.688**	1	.473**	-.299*
	Sig. (2-tailed)	.000		.001	.035
	N	50	50	50	50
EnablerTotal	Pearson Correlation	.743**	.473**	1	-.401**
	Sig. (2-tailed)	.000	.001		.004
	N	50	50	50	50
BarTotal	Pearson Correlation	-.403**	-.299*	-.401**	1
	Sig. (2-tailed)	.004	.035	.004	
	N	50	50	50	50

** . Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

After having analyzed the data statistically to see the relationships between individual factors and between the ITG maturity levels, the next step will be to measure the affect of the three categories along with the ITG maturity level on achieving business performance via ITG outcomes.

All factors making up the each category were relying on the questionnaire's basic questions being in the form of a five-point likert' scale for each item. For each category the mean was calculated and statistical analysis were performed for each of the three main categories with the outcomes category.

By considering the data in (table 14), the regression model of ITG outcomes on awareness, ITG status and ITG factors are:

Outcomes of ITG on Business performance= $1.296 + 0.721 \text{ Status} - 0.005 \text{ Awareness} + 0.046 \text{ factors}$. This means that any additional unit in ITG Status will lead to 0.721 increases in the outcomes, 0.005 decreases in the Awareness and 0.046 increases in Factors.

Hence, in this model the Status of the current ITG practices are the only important variables in predicting outcomes. The other variables (awareness and other factors effecting ITG) are not that important (because p-values for these variables are large as depicted in (table (14)). Moreover, when considering the model it is found that ($R^2 = 0.477$) which means that 47.7% in the variation in the output values is due to variables listed in the model. The remaining 52.3 % of the variations is due to other variables not listed in the model (in this study). Hence, we recommend studying such variables.

Table 14: Shows the relationships between the ITG status, Factors, Awareness and ITG outcomes

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.691 ^a	.477	.443	.66436

a. Predictors: (Constant), Factors, Awareness, ITGStatus

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.296	.454		2.853	.006
	ITGStatus	.721	.191	.683	3.785	.000
	Awareness	-.005	.198	-.005	-.027	.978
	Factors	.046	.193	.028	.240	.811

a. Dependent Variable: ITGoutcomes

Moreover, by testing the relation between ITG maturity and its affect on the value creation of IT outcomes, a statistically significant relationship between both factors exists($r=0.688$, $p<0.01$) and ($R^2=0.474$) table (15)).

Table 15: Correlations between ITG Maturity, ITG Outcomes.

		ITGMaturity	ITGoutcomes	Q3.1ITinvesValue	Q3_3ITPerfExpectations
ITGMaturity	Pearson	1	.688**	.598**	.640**
	Correlation				
	Sig. (2-tailed)		.000	.000	.000
	N	50	50	50	50
ITGoutcomes	Pearson	.688**	1	.938**	.814**
	Correlation				
	Sig. (2-tailed)	.000		.000	.000
	N	50	50	50	50
Q3.1ITinvesValue	Pearson	.598**	.938**	1	.562**
	Correlation				
	Sig. (2-tailed)	.000	.000		.000
	N	50	50	50	50
Q3_3ITPerfExpectations	Pearson	.640**	.814**	.562**	1
	Correlation				
	Sig. (2-tailed)	.000	.000	.000	
	N	50	50	50	50

** . Correlation is significant at the 0.01 level (2-tailed).

Hence, it can be concluded from the results of this section that there are some factors that have more influence on the ITG maturity level and hence on business performance more than others. The most significant factors are the level of realization of management regarding the importance of having IT as part of the schools business strategy, and overall business governance, in addition to the realization of IT's role in bringing in innovation to the school. However, the role of IT in increasing business efficiency and effectiveness was not considerably bringing in value to schools yet.

Moreover, in terms of the best practices currently bringing in value to schools, the most significant practices were having IT on managements agenda and aligning IT and business strategy. Whereas, the level in which IT informs business of new opportunities is still not significant enough in bringing in value to schools. This might be due to the fact that although the more schools perceive innovation to bring in value to the school; the majority still has not used technology to create innovation to an extent which value can be produced.

In terms of the factors affecting the effectiveness of ITG in schools and hence the overall business performance; it has been found that the enablers to ITG affect positively

the level of ITG maturity and business performance. On the other hand, the inhibitors facing schools affect negatively the level of ITG in schools and the business performance.

When considering the categories including the different factors that each one consists of, it was found that the status of the current ITG implementations has a stronger influence on the ITG maturity and business performance outcomes than the affect both the factors affecting ITG and the Awareness of managers.

Chapter 6: Case Studies

This section is devoted for the third part of the data collection method which is an essential part of the research methodology. To address how effective ITG is in the context of for profit educational sector, a case research method is useful for addressing the “how” questions as suggested by Benbasat et al. (1987). This is especially important in the stage of knowledge building exploration. The case study method is particularly useful to study ITG implementations and other aspects in the educational contexts that lag that of practitioners in the IT field; therefore, a case study research strategy in this context will provide rich insights and valuable information. Moreover, Case study research is useful in discovering new methods and techniques that can be used in capturing knowledge of practitioners to develop theories accordingly De Haes and Van Gembergen (2008). As suggested by Eisenhardt & Yin (1994) in case studies, qualitative data collection is often used.

The case studies targeted top non-IT executives and managers of 5 schools from all over the UAE to ascertain their views on IT’s contribution to the business and to identify ways their schools are governing IT. The schools participating in the case study were limited to the schools that participated in round one of this study which was the participation in the main survey. The maturity level of each school used to categorize the schools into groups according to their perceived level. It was found that the level of maturity of schools ranged from level 1 to level 4. An interesting observation was that none of the schools have indicated their level to be at level 5 nor at level 0. The selection of the 5 schools was based on the maturity levels of the schools based on the main survey results; where, two schools with the highest performance, one moderate and two with the lowest performance were randomly selected from each category regardless of the Emirates they were located at. If two schools were found to be in one emirate; the selection was repeated once again, in an attempt to have a variety of samples from uniquely different emirates around the UAE.

As in the main survey, the schools names were not mentioned reserving their anatomy as they have requested, instead alias names were used such as School A, School B, School C, School D, and School E. The case studies were carried out based on a semi-structured interview that consisted of 10 main questions. The questions were sent along

with an invitation of participation to the selected schools in prior to the arranged meeting, in order to give time for the participants to arrange for any data collection or clarifications regarding the case study questions. If a school refused to participate, another school was randomly selected from the same category and replaced with that school. A meeting was arranged with each school upon the agreed pace, where the average time of the interview took was 2 hours with each schools. For schools located in “Alain” face-to-face interviews took place, whereas, for schools located far in other emirates, telephone interviews were arranged instead. The main interviewee was the Principal along with another party in a decision making position recommended by the Principal if required in some cases.

The Case study was designed around ten questions (see Appendix C) that were essential to gain more insight on the actual reasons for the variations in maturity levels between schools where these schools have scored different maturity levels from the highest to the lowest. The main purpose was to study in depth the best ITG practices that were implemented in the sample case study population, the most significant drivers, enablers, and inhibitors to effective ITG. Moreover, it was also aimed to understand the level of awareness, commitment and support of top management to ITG practices implemented in their schools and to understand the real reasons that made the schools be at the ITG maturity level they have defined.

In this section, a thorough study of the five case studies will be demonstrated along with the main responses to the ten semi structured interview questions. According to the responses and knowledge level of ITG in some cases, the questions were followed up with more relevant follow-up questions. Prior to starting the interviews, an elaborative discussion on the purpose of the study in general on different ITG aspects in particular took place as required with the interviewee. Moreover, the term IT Governance was recalled and other main terminologies revisited. For some questions there was a need to refer back to the main survey responses of these participating schools, the surveys were filtered out using the school names and the demographic information provided by principals, as all principals have specified the school names and Emirates they are located in. Likewise, the maturity level and effectiveness of ITG in each school was discussed with the Principal as revealed by the school principals in the main survey responses of each particular school. Autonomy and confidentiality of the results was ensured and preserved and principals were promised once again that this information will not be given out to any third party and

is only for the research purpose. As for some questions such as the drivers, best practices, enablers and inhibitors; school principals were given an initial list with examples of these factors to start with, where they were also asked to select which were applicable and to add any others that apply to their schools in particular which might not be provided in the list.

In some cases, there was a need to phone the school Principal later on to clarify some ambiguity or to get more information on some aspects of the study.

This chapter includes a thorough description of the details of the 5 case studies in regards to the 10 semi-structured questions used when interviewing each school. The chapter then includes an analysis and discussion of the findings of the case studies regarding ITG effectiveness in the selected for-profit private schools.

6.1. Case Study Data collection and Interviews

Case Study 1: School A

a.1 Introduction- School Profile

School A is positioned in Alain educational zone, and is one of the schools that have achieved a high level in last year's ADEC quality inspections. The school is considered one of the largest schools in the UAE in terms of business attraction. It encompasses approximately 2300 students and a total of 230 high-qualified teaching staff. The school has many international accreditations such as being accredited by the Cambridge Examination board, CITA/ADVanced Ed, ICDL foundation, ISO and other external and internal bodies. School A, has a very well set IT department and considers IT to be very essential in all business and academic aspects. IT in the school plays a very effective role as it is used not only as a taught curriculum or a teaching tool, but also as part of the schools management system. The school has a full functioning information system in place, associated with a web based customer relation management system in addition to other e-services provided to stakeholders. The school finds this portal essential to communicate with all stakeholders and the society. Moreover, internal networks are set and well managed, in addition to a comprehensive financial information system that is centrally connected to the overall school information management system. For most of the web based technologies and database systems, the school outsources these applications to

specialized companies with very well established contracts and after development services. The IT department is an essential part of the schools hierarchy, and basically consists of 16 members in total, some of which have teaching delegations while the rest have responsibilities of providing and maintaining the basic IT services required in the school. Such services include, data analysis, website updates, data entry, developing systems, help desk services, monitoring and controlling the internal and external school systems and networks, maintaining security, tracking outsourcing contracts, trouble shooting problems as some to mention. The school also has a devoted CIO which reports directly to the school Principal. The CIO is part of the management team and attends all management meetings; IT is highly on the managements meeting agenda.

The school Principal was interviewed for a time span of two and a half hours. The school principal has been working for the school for more than 15 years. In addition, the Principal has a good background of IT and its applications.

By considering the semi structured interview questions, the School Principal thoroughly answered all the 10 questions as summarized in this section.

a.2 Vitality of IT in School "A":

According the school Principal, IT is very vital in the school, IT has helped in achieving a high level of competence where it would be difficult to reach without this level of IT integrity into the overall school strategy. IT is part of every aspect in school from management issues to teaching issues including functional and operational task. IT is an essential part of the management plans as the CIO is a member of the management team and attends all the management meetings. Moreover, IT is highly on the managements agenda and is integrated into all school processes. Decisions are taken in collaboration between both IT and business sections. Considering the schools Organizational structure, the CIO is directly under the Principal and The Vice Principal, therefore, reporting directly to the Senior managers and management committee. In School "A", all delegations and responsibilities are clearly defined, job descriptions are well stated, and communicated to all staff members including IT staff. Regarding the critical decisions made in IT projects or initiatives, the CIO does a full case study, and submits a proposal. The proposal is then

discussed with the Management committee and chief accountant along with the CIO, who will then be responsible to evaluate the progress and success of these initiatives.

a.3 Business/IT alignment in School A”.

Regarding whether the school’s business strategy is aligned with the IT business strategy or not, and to what extent, the Principal stated clearly that Business and IT are well aligned. That is due to the fact that IT strategy is part of the school’s business strategy and both IT is aligned with business and business is aligned with IT in a way that they both harmonize to create overall school effectiveness. IT is a strategic partner as the Principal sees it to help in achieving the short and long-term goals in school. Moreover, IT is part of the school’s improvement plans and reserves a whole clause in addition to being part in other clauses. IT is highly on management’s agenda. There are good communication lines between management, business and IT and all understand each other. Moreover, IT and business staffs are experienced in finding best IT investments to create value for the school.

a.4 Why IT and ITG at School A?

Regarding the need for effective ITG in school A as a method of gaining value and remaining competitive among other schools, the Principal expressed her , believe that IT is very essential in the twenty-first century, as it is the era for achieving competitive advantage in the educational business field just like in any other businesses.

This is because IT can be used to:

- Attract more customers, and widely reach more people than can be done by traditional communication or advertizing methods.
- It can help in keeping things more centralized and therefore, the management of all school assets, financial resources, and communications can be tracked and dealt with more efficiently.
- IT is a source of Knowledge sharing and maintaining sustainability as academic resources, and best practices, may be stored and used with new staff therefore, helping to overcome the problem of staff leaving the school with their knowledge and creative resources.
- IT also helps in increasing knowledge sharing and best practices sharing and therefore, it helps in increasing organizational learning.
- IT also helps in increasing innovation and creativity and in our schools; case is very helpful in always finding new ideas to sustain a competitive edge.

- IT is also very essential to keep track of all financial aspects in our school, therefore, reducing wastage or unknown expenditures, and also reducing errors and mistakes, which all result in higher incomes and better financial management.
- As a Director, IT is also helping me in evaluating staff performance, as I can track the quality of work posted, the punctuality, the communication with stakeholders, and so, which increases the overall organizational performance and effectiveness.

Due to this, She expressed that she agrees that there is an urgency and need to have effective ITG in school to gain the value of all these IT implementations in school. This is in terms of IT achieving business benefit. And that is because Business must be thought of in parallel with IT as they are now complements and one relies heavily on the other. “If we don’t consider IT in the right way as a strategic partner for our business, then we will never be able to meet the demands and challenges of business as it is in the 21st century”.

a.5 Drivers for implementing ITG in School “A”:

When the Principal was questioned about the most important drivers that lead to implementing or considering ITG in school, she mentioned that the most important ones were:

- To meet and comply with international standards and global requirements regarding the use technology CITA, ADEC, ...etc..
- To ensure better IT alignment and harmonization with business.
- To better manage assets and financial resources and cost reduction and risks.
- Improving overall school effectiveness and performance.

a.6 Current ITG practices in School A:

After an elaborative discussion on what is meant by ITG best practices including how IT decisions are taken in school, how well delegations and responsibilities are assigned, in addition to the role of ITG in the school’s overall governance practices. These practices may also include any performance metrics or risk management procedure used to ensure effective IT implementations and services. Thus, and in response to the second question concerning the current ITG practices implemented in the school, the school Principal highlighted a number of practices implemented in school, these practices were summarized in the following table(16):

Table 16: Case Studies- ITG practices in School "A"

ITG practices in School "A"
Having a full IT department lead by a CIO in the position of School deputy for Information technology.
Very clear job descriptions and roles and delegations are set clearly and related to school overall mission and vision.
The CIO is part of our steering committee and attends all our management meetings.
IT is one of the most important aspects considered on our management agenda.
IT strategy is part of our business strategy.
We have an IT auditing committee to ensure the quality of technology in all aspects of the school is satisfactory.
The CIO is part of our organizational hierarchy, and management team, and reports directly to the principal.
A devoted budget for all IT aspects which is controlled and carefully monitored.
All IT investments, prioritization, performance evaluation is discussed at board level.
IT security and risk management is a major aspect in our school.
IT strategy and plans are part of our annual and long-term improvement plan and is an essential clause of it.
We encourage and consider knowledge management part of the success of our school via IT.
We have bridged the gap between Principal/management, Business and IT via the CIO in school that is a double major holder of IT and business.
The accountants and IT CIO discuss aspects and plans and directly report to each other.
The CIO is clearly articulating the vision of IT in the school to all stakeholders.
CIO is responsible for articulating IT vision, and strengths to all departments to use IT up to its potential in achieving competitive advantage.
CIO is responsible for bridging the gap between different departments and IT and providing training as required to creating an IT value culture in school.
IT risks are well managed and controlled by the IT department.
Well defined IT policies, and procedures.

By considering the Principal's responses, it is observed that the school has a number of very well set ITG practices regarding ITG structures, procedures, and mechanisms. However, regarding the use of IT performance metrics, the Principal declared that this is still not fully satisfactory, as IT investments are very high, and there is no clear indication of how much income is returned in terms of IT itself, as it is only considered part of the full combination of facilities, assets, and services the school offers. Therefore, it is still difficult to assign a percentage of income clearly as a result of IT investments. Nevertheless, IT value is measured implicitly within overall profit in addition to using other intangible measurements such as feedback from customers, good response times, less downtime in system, rate of usage of the website, acceptance of parents and students of ease of use of the school IS. In addition to measuring value via the positive performance and feedback from external accreditations and auditing bodies such as ADEC, ISO, CITA where they all have standards that check the quality of the IT system in school, good backup system, and

good privacy and security. All of which lead to good reputation, satisfaction and trust of stakeholders, in addition to reduced complaints and increased overall school effectiveness.

a.7 Level of ITG Maturity of School “A”

According to the main survey, School “A” has perceived its ITG maturity level to be at level four on a scale of six levels with an ITG performance percentage of 88%. This result was discussed with the Principal as why she thinks the school has achieved this level of ITG maturity. In her opinion, she thinks that the ITG maturity level of the school scored high due to the fact that IT is supported by the management board and they believe in its strategic value. The school also sees IT to be a business partner that should be aligned with the overall business strategy. Another reason is that this believe in IT and its existence in all aspects of the school whether as a strategic partner or an academic enabler; made the board opt for having a devoted CIO, in addition to having a devoted IT department. The main role of this department is to meet all IT functional, operational, academic and strategic needs. Where this is very essential to manage the schools strategic plans therefore, ensuring a high level of effectiveness that keeps the school at a competitive edge while giving new horizons of differentiation to compete with other schools in the sector.

a.8 Enablers to effective ITG implementations in School “A”:

In terms of the most important enabler for implementing ITG in school “A”, the Principal denoted that it is the managements support and commitment to IT and its vital role and value. In addition to that, she also highlighted that an important enabler to effective ITG is the growing awareness of all stakeholders of the importance of IT, finally the skills and qualifications of the management team that understands education, business and IT.

a.9 Barriers impeding effective ITG implementations in school “A”:

Regarding the question on the most important barriers impeding the implementation of ITG in school “A”, the Principal highlighted that Budget limitations such as lack of financial aids, lack of local existing solutions as most are outsourced abroad hence, making it hard to track. Furthermore, an important barrier is the high pay of IT-business specialists, and IT

solution developers to be existing on site. It is very essential that IT understands business and business should understand IT to create value, and this is a very hard combination to find, although it could be gained by long years of experience or by higher education in new fields that bridge this gap.

a.10 How well IT and effective ITG creates value in School “A”

In regards to the question “How well do you perceive the created value of IT in your school due to effective ITG and how do you measure IT performance?”

The Principal asserts that effective ITG implementations and IT management is creating value in school “A”. This is due to the fact that effective ITG helps in thinking of IT and business in parallel instead of thinking of IT as an enabler to business. Effective ITG has helped in clearly defining all points where business and IT need to integrate to work towards achieving the strategic goals. Furthermore, ITG has helped in realizing the opportunities and threats associated with IT in regards to the challenges and competitiveness of the private school business.

The Principal denoted some indicators of this created value due to effective ITG to be :

- Better communication with stakeholders and more spread and reaching a wider portion of the population.
- More stakeholder satisfaction which is reflected by student and staff reduced turnover rate.
- Better risk and data backup management.
- Higher profits and reduced costs.
- Better benefits returned for costs on IT assets.
- Better reputation and competitive advantage over other schools.

In terms of how this value is measured, the Principal emphasized the fact that it is hard to measure the actual value of IT in isolation of other facilities and services. Although the IT investments have a legend of its own on the budget, but the profits and returned benefits are hard to be tracked back as a result of IT in isolation of other factors. Moreover, she also stressed on the fact in addition to these financial returns other measures such as costs compared to profits (turnover, and enrollment) in addition to other intangible measurements that are implicitly measured in the form of reputation and stakeholder evaluation, satisfaction of stakeholders and community. One other form of measuring the

effectiveness of ITG and the returned value from IT is via the evaluation of external bodies such as ADEC and CITA and ISO.

a.11 What ITG frameworks are implemented in School “A”

The Principal was asked about whether the school has implemented any ITG frameworks/standards/best practices and any future plans for doing so. The Principal stated that the school does not have any formal ITG framework yet, however, the CIO has raised a proposal of improvement requesting the implementation of either ITIL, or ISO 38500, where this was clearly discussed, and the purpose and benefit to school was clearly defined in the proposal of improvement. As a management team, the proposal has been approved and now is in the implementation phase. However, the school does have other internal ITG practices and procedures that are very well managed and documented. Likewise, the schools also complies with other external standards and frameworks which encamps good ITG and IT management in school such as standards of ADEC, ISO, and CITA/AdvancED.

When considering the responses of the Principal to the highlighted areas of ITG within the case study interview questions, it is evident that a good level of ITG exists in School "A". This can be observed from the high perceived maturity level and ITG performance percentage. Moreover, it is also apparent that the school has a good number of best practices in place. The school has a number of barriers hampering it from achieving a higher maturity level and from perceiving the full value returned through IT. The main drawbacks in the schools ITG implementations is the absents of formal IT business measurement metrics which hinder full realization of IT returned value on IT investments, in addition not having any formal ITG framework in school.

Case Study 2: School B

The interview was conducted via phone call, for around 2 hours with the school Principal. The school has completed the main survey online in round one. As for the case study phase, a copy of the interview questions has been sent a week in prior to the agreed interview date along with the invitation to take place in the study allowing for any necessary preparation.

b.1 Introduction- School Profile

School "B" is an outstanding school located in the western side of the country in Dubai City. The school has been founded in the 1970's and has a student number within the range of 1500-2500. School "B" is well known for its outstanding academic performance and distinguished leadership. The school also has state of art IT systems that are basically in place to help in increasing the effectiveness of the communications between the school, stakeholders, and the society.

School "B" has a very advanced IT system and facilities, this includes a very interactive school information system, a well managed student portal, networks, intranets and other facilities to support the teaching and learning process. The school also believes that IT is very important to the schools innovation, efficiency, and effectiveness. It is one of the very few schools that relays on technology heavily, hence, requiring a high standard of computer security, privacy, data storage and backup systems. Moreover, this infrastructure that builds on this amount technology also requires good network setups, and well monitoring and control of all IT aspects in school. Well-established security and privacy procedures are in place and firewalls are installed and updated regularly.

The school has more than one branch and therefore, needs effective coordination and centralized systems to ensure consistency of data storage, and data formats in both campuses. Furthermore, the system in place is flexible and adaptable to fit the demands of integration into the proposed KHDA e-system for reporting to higher educational authorities.

School "B" outsources a number IT solutions to well-known IT solution providers such as HP and ProCurve such for creating a state of art IT infrastructure and providing a problem-less wireless network throughout the campus. Moreover, the outsourced facilities

and solutions also include providing unique wireless solutions using adaptive EDGE architecture which is the first in the Middle East. In addition, the school is in the process of launching the most advanced video conferencing system in the UAE, which will be used to allow students to access distance learning courses at As and A2 levels from international resources.

The school also has a number of computer labs that are well networked and connected, therefore, having effective firewalls and security systems in place. One essential part of the overall IT structure is the school information system, which helps in ensuring all data and information is centrally stored and accessed. The school website is well designed and managed, and is used to communicate with the society. Moreover, the school has an IT department but basically, this is devoted for academic chores. Part of the site supporting staff which are considered part of the administrative staff are the technicians, network administrators and other IT specialist. The school has a devoted ICT center which in addition to providing professional training for parents, students, and staff provides the required functional and operational support required for both of its branches. In addition to the chain of schools they are part of that are internationally located and have an overall quality assurance system the school complies with.

b.2 Vitality of IT in School "B"

School "B"'s Principal stressed the fact that IT is vital in School "B", as IT is strongly a strategic partner of the school's business strategy, where the school relies in most of its aspects on technology to create value. IT is being on the schools management agenda and one of the most important aspects of the school to discuss with the board of governors. In school "B", the management believes that they need state of the art technology to remain competitive, and to meet the challenges of the 21st century.

In regards of decisions made on IT investments, the school relies heavily on its external partners, HP and Procurve, in addition to the recommendations from the ICT center as there is no devoted CIO that is part of the management team. The school also is open to any innovate suggestions by staff, parents or the community in terms of new IT trends that add value to the school. The school management and board are committed to new technology and support IT investments. If a new IT project or initiative is born, a

devoted meeting is called for, therefore, it is not necessarily part of the management meetings, but rather an IT specialized meeting bringing together IT and business people. IT resources are made available whenever the business demands call for it; moreover, they are sufficient enough to support both the school's academic and strategic goals.

b.3 Business/IT alignment in School "B".

In regards to the alignment of business and IT in School "B", the Principal emphasized on the fact that IT and business harmonizes well to create business value by meeting the organizations goals, however, it is not totally aligned with it. IT is supporting the business strategy therefore; the business strategy drives IT strategies in School "B", whereas the opposite is not always true, such that business strategies and school goals would rarely change to fit IT strategies. Therefore, IT falls under the facility and service provision just like any other enabler of the school instead of being a management aspect. Business and IT understand each other and there are clear communication lines between their units. Likewise, business realizes that IT creates value to the business. IT value metrics are available but not fully satisfactory, however in regards to the overall performance evaluation of the chain schools main office; other performance indicators exist such as using KPIs or BSC.

b.4 The need of effective IT and ITG implementations at School B:

In regards to the question on whether the school finds it necessary for effective ITG in school to gain value and remain competitive among other schools or not, the Principals answer was "yes it is". The Principal clarified that the school has achieved outstanding academic performance in Dubai's school inspections, and there are many competitors in this business sector, as Dubai is full of good schools. The need for innovation and differentiation is vital and one way of achieving this is via state of art technology. With this wide use of technology that is integrated into all aspects of the school including its operational, functional, tactical, and strategic levels, there is a need for good IT management and governance. Although the terminology "ITG" was new to the Principal, the structures, procedures and mechanisms were familiar, and the need for ITG was clearly of significance. School "B"'s Principal highlighted, that although she is not totally entitled

to make IT related decisions alone, but she does believe that it is one of the schools priorities. The partners, along with the ICT center are the ones who are responsible for the follow-up of effective ITG and ITM practices, where this is their responsibility, nevertheless, the Principal does believe that good governance of IT ensures that IT is reducing costs and adding value to the school. She also believes that ITG helps in increasing the efficiency of the school processes and procedures. From her experience with IT, good management decisions and support to IT also helps in reducing costs and increasing profits due to the good management of resources. Finally the principal denoted that good ITG reflects on overall school effectiveness by bringing in good reputation, stakeholder trust, and more quality to all aspects of the school. Good ITG helps to ensure compliance with educational authorities to ensure the school's systems are consistent with the authorities systems.

b.5 Drivers for implementing ITG in School "B"

School "B"'s Principal stated that there are many reasons that would drive the school to implement effective ITG settlements in school. The most important ones are the need to ensure that IT is creating value, and that benefits from IT overweight IT costs. Moreover, it is important to ensure that IT strategy and the business strategy work in the same direction with no conflicts. The need to ensure school information systems and the quality of IT services provided comply with standards of KHDA, and other accreditation bodies in one reason for ensuring effective ITG in school. Finally, one of the important drivers for ITG is to manage associated IT risks that can have a severe negative effect on all school aspects if something goes wrong.

b.6 Current ITG practices in School "B":

After discussing what ITG practices mean and the different aspects of it, though the terminology IT Governance was new to the Principal, she expressed that the school has many ITG practices in place even if they were not officially named to be "ITG practices". Some practices mentioned were (table 17):

Table 17: Case Studies- ITG best practices in School "B"

ITG best practices in School "B"
Having a full ICT center.
Very clear job descriptions and roles and delegations are set clearly and related to school overall mission and vision.
IT is not always on the management's agenda, but when required, devoted meetings take place including management, board and IT representatives.
IT strategy supports our business strategy.
The quality of IT is monitored and controlled by external partners and ICT center.
IT security and risk management is a major aspect in our school.
All IT investments, prioritization, performance evaluation is discussed at board level when proposed by the partners and the ICT department.
IT strategy and plans are part of our annual and long-term improvement plan and is an essential clause of it.
We have bridged the gap between Principal/management, Business and IT via creation of a devoted ICT center and via partnership with specialized IT experts in the field
ICT center is clearly articulating the vision of IT in the school to all stakeholders.
ICT center is responsible for bridging the gap between different departments and IT and providing training as required to creating an IT value culture in school.
IT risks are well managed and controlled by the ICT center and IT solution Partners.
Well defined IT policies, and procedures.
A strong IT infrastructure
Regular self-assessments or audits of the governance and control of IT aspects in school.
IT budgets are well managed and controlled.
ICT center and partners inform the management of new business opportunities that are enabled by new technologies

When questioned about having a CIO or any similar role member to be part of the management committee, the principal mentioned that there is no devoted CIO, however, as mentioned before there is a manager of the ICT center, which in addition to running the center is responsible for ensuring the quality of IT aspects in school. The IT manager reports to the facility and service division. If any critical situations or decisions need to be made, a meeting is arranged with school management and board of governors. IT aspects are part of the facility and services budget which is controlled and carefully monitored. Another interesting factor the Principal mentioned was that the IT strategy is driven by the business and overall school strategy, therefore, IT decisions are only made when the business demands requires IT involvement.

b.7 Level of ITG Maturity of School "B"

According to the main survey completed by School "B", the level of ITG maturity the school perceives itself to be situated at is level three on the standard ITGI six level scale. This could be considered as moderate and would be the least maturity level acceptable (De Haes & Van Grembergen, 2006). Moreover, the overall ITG performance of the school according to Weill and Ross (2006) measurement tool has been calculated to be 75.7 %. Which is somewhat higher than the averaged ITG performance result found by Weill and

Ross (2005) which turned out to be 69% on a study done on 300 enterprises worldwide to create a benchmark for others to see how good their ITG is performing.

When the school Principal was informed of what this level meant and why she thinks the school is at this level, she denoted that, the school has well procedures that have been consistent and standardized throughout the organization and have been well articulated via good training and orientation. There are no complicated procedures in place; nevertheless, good in-house practices exist in a less formalized matter. The other critical success factor is the management's commitment and support to IT, as the management has full awareness of the value IT creates for the business. One very powerful reason here, is the support and learning curve gained via the chain schools' experience in governing and managing IT, where mistakes are avoided and best practices are considered.

Although the school heavily relays on technology, as a part of its infrastructure and core competences, it still lacks some vital ITG practices such as not having a CIO as part of the management team. In addition to not having a direct reporting line from IT to management. Moreover, another major missing factor is that the school needs to consider IT as a strategic partner not as a business enabler. The school also has not articulated the difference between ITG and ITM to concerned staff. This will help in considering IT from a business perspective not only an operational and functional perspective. The school also lacks an accurate system of tracking business value gained from IT.

b.8 Enablers to effective ITG implementations in School "B":

Regarding the question related to the most significant enablers that lead to effective ITG implementations in School "B", the Principal started with the most significant factor which was the board of governors and management's commitment and support to IT due to the nature of the centralized school chain that needs effective IT to communicate and coordinate together. Therefore, if the management didn't support this level of IT, the school wouldn't have reached this level of outstanding IT implementations. The second enabler is the economy of experience the school has due to the experience and best practices gained via the long years of experience from the other chain schools. Therefore, there was no need to revert the wheel, as a matter of fact, the problems were avoided, and best practices adapted in all IT related aspects, as this learning environment is very

important for gaining effective ITG levels. The high-qualified human resources and IT partners that transfer the power of IT into success for the school and added value.

b.9 Barriers impeding effective ITG implementations in school “B”

Regarding the barriers that impede the implementation of effective ITG in school, the school Principal highlighted the fact that financial budget limitations are the most important factor. This is due to the high costs of technology and which require high investment budgets. Moreover, the financial crisis the world has gone through lately has also had an effect on the school’s projects and investments in one way or another.

Another barrier is the ability to measure the benefits gained from effective ITG in a tangible manner, still is not that accurate. The school has not yet reached a point where it could say that this is the profit rate made due to effective ITG or ITM in isolation from other factors and assets. Another inhibitor to effective ITG in school is the emergence of unplanned projects and initiatives that consume resources and have a negative effect on plans such as changing requirements of IT infrastructure for some examination boards. The need to create a culture of acceptance of accountability to ITG practices is also still missing and has dramatic affect on the success of ITG.

b.10 How well IT and effective ITG creates value in School “B”

In terms of the created value due to good IT and ITG implementations to School "B", the Principal positively asserts that IT has created value to the school. The created value is tangible in terms of higher profits such as higher ROI, ROA, revenue, although it still is not totally perceived to be due to IT alone but due to the combination of facilities, and services brought through IT as it is hard to isolate IT from other factors. The proper IT and ITG implementations are realized to bring in value and increase revenue by helping in gaining better customer, student and staff satisfaction therefore reducing turnover rates and increasing retention and new enrollments. Furthermore, although the initial costs of setting up these systems may be high, however these implementations are helping in reducing costs on capital and on assets in the long run. On the other hand, regarding the intangible value added by IT and ITG, the state of art IT facilities help in providing a more enjoyable teaching and learning environment which increases students and parents loyalty to school therefore achieving customer and community trust. Effective ITG settings also

help in creating a more innovative, creative culture in school which also has results in good reputation and therefore attracts more customers. Another form of value creation gained from effective ITG, is the best practices and error avoiding throughout the whole worldwide chain of schools. This is due to the fact that errors are avoided and best practices are communicated and shared, in a way that allows for all to learn from other schools experiences in particular situations. The unique settings give an advantage over other schools in the market; where particular circumstances can have severe negative effects on the business. With this powerful knowledge sharing system of best practices, all risks are controlled and mitigated with least damage keeping the school and its sisters competent with other schools worldwide regardless of any unexpected circumstances, hence ensuring differentiation and sustaining competitive advantage.

b.11 What ITG frameworks are implemented in School "B"

In regards to this question on what standardized formal ITG frameworks the school uses, the Principal declared that this is "too technical" to be answered by her. Therefore, the question was transferred to the ICT center manager via telephone call. The manager stated that School "B" in its current branch in Dubai is only 4 years old, and therefore it is still in its IT infrastructure building phase. A lot of new systems are being implemented and some projects have not yet been finalized. Being a sister school of older schools that have long years of experience in IT, where state of the art service is required by all services the school provided, makes it a must for all chain school to implement ITIL in which we have achieved successfully. On the other hand, the older schools in the chain have implemented customized parts of the COBIT and VAL IT frameworks, as a sister school it is a must to comply with the same standards to ensure consistency and standardized quality throughout all the chain of schools worldwide. Therefore, the school will be going for the COBIT and VAL IT frameworks in the near future. The Manager also stressed the fact that not only does the school comply with these international frameworks, but they also have internal auditing and IT quality assurance standards set by the ICT center in addition to the frameworks and audits done by the IT partner organizations. In addition, it also is part of the quality assurance audits by different educational authorities such as KHDA, and UK boards.

To summarize the effectiveness of ITG implementations in School "B", it is observant that the school has good practices in place resulting in an ITG maturity level of 3 and ITG performance of 75.5%. ITG structures are inherited via the best practices that have proven to work in the sister schools in this chain of schools. Moreover, the ITG procedures and mechanisms are stronger and more powerful than ITG structures. This would probably be due to the fact that the proper procedures and mechanisms have formulated over the long years of experience. However, the structures themselves such as having a devoted CIO that is part of the management team, were compiled in a different form that has proven to be effective in this school, which was by establishing a devoted ICT center and relying on external experienced IT partners for improvements and staying ahead in terms of new technology trends. Likewise, the school is part of a larger chain of schools that are internationally situated therefore, complying with the same standards and frameworks of the sister schools to ensure consistence throughout the whole system. Another interesting fact about School "B", is the dramatic value creation they are perceiving due to the successful effective IT and ITG implementations. By comparing their outstanding performance as a school providing high quality educational services according to the KHDA inspection Audits for year 2009/2010, and the high IT maturity and IT performance score, it is observant that there is correlations between outstanding overall performance and effectiveness and high IT maturity and performance rates.

Case Study 3: School C

The interview was conducted via phone call, for around 2 hours with the school Principal. The school has completed the main survey online in round one. As for the case study phase, a copy of the interview questions were sent a week in prior to the agreed interview date along with the invitation to take place in the study to allow for any necessary preparation.

c.1. Introduction- School Profile

School "C" is a for profit private school situated in the Emirates of Sharjah, the school is a moderate school in terms of academic performance. The school was established in late 2005, moreover, it may be considered to be a medium sized school in terms of the number of students where it caters for a range of students between 500-1000 students with a number of staff that are less than 99 members in total. The schools revenue is less than 4 million which is conceived to be low when compared to incomes of other schools in the case study. The school offers K-12 international curriculum based on UK education. School "C" shows significant improvements year after year since its commencement. The school Principal believes that the strategic driver of the school is to provide quality education while increasing profits. Therefore, the school is profit oriented, as the whole school coordinates on building core competences that increase revenue within the existence of competitors serving the same market.

The school has a moderate level of IT infrastructure as its experience in information systems and IT areas is only four years old. School "C" has an IT department with a designated Head of department and 5 staff members. It also has one technician and two data entry clerks in the position of a school secretary. IT in school is basically operational and functional other than being used as an effective tool in supporting teaching and learning. It also has a well-designed and well-managed web portal that is outsourced to professional web designing and hosting companies. A school information system is in place to ensure all school aspects are electronically managed. The school has no CIO neither does it have any IT expert as part of the management team. In terms of staying competitive, the school believes that this is achieved via state of art teaching and learning in addition to outstanding school facilities.

c.2. Vitality of IT in School "C":

Regarding how vital IT and ITG implementations are to the school, the Principal expressed that it is “somewhat important” in regards to the successful delivery of the overall business strategy and school vision and in terms of its role in creating innovation efficiency and effectiveness in the school. The school uses IT as an enabler to effective teaching and learning, in addition to ensuring that all school operations are done with high quality. IT is an enabler but not a strategic partner. The suggestions of projects done in IT are initiated by the IT department or the staff then they are approved by the Principal and chief accountants. The IT department makes sure the systems and IT infrastructures all meet the requirements of the external examination bodies such as Cambridge or the Ministry of Education. The Head of IT department is not a member of the management team where the head is only responsible for IT functional and operational aspects of the school. Furthermore, IT is on the schools agenda only when it is necessary, as the Principal believes that IT should not be discussed at an executive level, it is a facility and service just like any other services in the school.

The Head of IT department reports to the Principal in cases where approval needs to be considered, other than that the head reports to the facility and service department. Monitoring and controlling IT associated risks is the responsibility of the IT Head of department, where the administration is not involved, as other risks are more significant from the point of view of the Principal.

The link between IT strategy and Business strategy is very weak, as the school still perceives IT to be an enabler not a strategic partner. The Principal also believes that although IT can achieve competitive advantage and create value, other aspects such as outstanding teaching, new innovative methods, qualified staff can be an alternative with lower costs of implementation and initiation.

In relation to the extent in which IT strategic decisions are part of the overall school governance arrangements, the Principal stated that it is sometimes part of them when it comes to decisions that might increase spread, value, quality or reputation hence, adding value to the school. IT is only integrated into the school’s strategy when it adds value as a solution but never considered if not required.

Job descriptions are available for IT staff just like other staff; conversely, the job descriptions do not explain the role or responsibilities of IT staff in regards to ITG implementations.

c.3. Business/IT alignment in School "C".

Regarding the level at which IT and business harmonize to achieve the schools strategic goals, the Principal stated that IT is not necessarily important to deliver the school's strategic goals as it helps but is not vital. The Principal and the school board are not involved in any IT decisions, only if they sustain and support the school's strategic objectives which is the case sometimes, other than that, the decisions are made by the Head of IT and approved or rejected by the school management committee. School "C"'s Principal also highlighted the fact that the IT Head is not a member of the strategic team, and does not attend the management meetings.

The linkage between business and IT strategy is School "C" is perceived to be "poor" as perceived by the top management such links include involving management in IT decisions that are critical or in finalizing approved projects and initiatives. However, other links between IT and business strategy are missing such as not having IT on management's agenda, not having IT strategy committees in school, the absence of regular external reviews on the quality of IT and the absence of an IT executive as a member of the management committee.

c.4. Why ITG and ITM at School "C"

The Principal of School "C" replied that Managing and Governance IT is important in the school to some extent, as it helps in increasing the efficiency of the school processes such as the school information system, the financial system, the registration system and so forth. In addition to that, ITG and ITM also help in ensuring the school has an up to date system and infrastructure that ensures compliance with regulations or auditing boards, such as Cambridge or the Ministry of Education. However, he does not see that it is significant that ITG can help in reducing costs nor to add value to other school processes. Furthermore, the top management of School "C" believes that ITG is essential in reaching customers satisfaction, and to compete with other schools therefore meeting the business needs in meeting stakeholder demands to provide the core level required to meet the

technology specifications of the 21st century. Finally, ITG helps in improving services, and control of IT services and resources.

c.5. Drivers for implementing ITG in School "C"

The most important drivers for which ITG is or should be implemented in School "C" as alleged by the Principal are that ITG is essential for gaining accreditations and certifications related to the quality of IT implementations of schools as a source of good reputation and more qualifications. In addition, other drivers are that good ITG would allow the school to ensure maximum usage of available IT resources in school. A third important driver is the control and management of IT aspects as a requirement and demand of parents and other stakeholders. Likewise, in order to get returns for the cost of IT, good ITG should be in place. ITG is also necessary to ensure all risks associated with IT are well controlled and monitored.

c.6. Current ITG practices in School C:

In relation to the best ITG practices implemented in School "C". The Principal denoted some of the structures, processes, and mechanisms that are considered ITG practices. These are summarized in the following table(18):

Table 18: Case Studies- ITG best practices in School "C"

ITG best practices in School "C"
ITG is managed in the school on ad-hoc basis
Some IT procedures and policies are in place.
Some IT performances measurements in place such as customer satisfaction, reduced complaints, reduced downtime, which might lead to better ROI.
Roles and responsibilities of IT staff are defined and clearly articulated, although they are missing clear roles and responsibilities regarding ITG aspects.
IT Security, compliance and risks are considered in school as part of IT head's delegations, not by management.

The school has very simple ITG implementations which imply that IT is still in the stage of building the infrastructure. Current practices are carried out basically on Ad-hoc basis by the IT department with a minimal involvement of the top management; however, it is

observant that the top management is in the process of formulating ITG practices gradually.

c.7. Level of ITG Maturity of School "C"

In regards to the maturity level of School "C", and according the perception of the top management in the main survey, the school finds itself to not consider IT strategic decisions and involvement as an issue of concern for the school, therefore being at level "1" with an overall performance rate of 44.3%. According to (Weill and Ross, 2006) this rate is below average.

The principal was informed regarding the level of ITG maturity and performance, and was asked to give his opinion on why the school might have got such a low maturity and performance rate. The principal explained that the school is still in the process of building its infrastructure, and IT services and functions are still developing. The school basically uses IT as a teaching and learning supporting tool, and an enabler for effectively doing tasks such as registration or mark analysis. As a senior manager, the potentials and power of effective ITG was not recognized and there was lack of awareness and insufficient expertise in ITG even among IT staff in regards to ITG and its benefits to create value in the school. The principal also highlighted the fact that the link between Management, Business and IT is somewhat very weak in school, as they do not understand each other. The school also lacks clear definitions of roles and responsibilities of IT staff and all other school members in terms of the implementation of ITG in school. Another factor might be the lack of knowledge in regards of the value IT can create to the school, due to not having an IT specialist in a management position to articulate the potentials that IT can bring to the school.

By considering the principals responses, the perceived low level of ITG is rational, as there is an existence of ITG issues although they are very basic in the form of ad hoc approaches applied on an individual or case-by case basis. Management only gets involved when necessary or to finalize issues or approve them or to avoid mistrust or loss inconsistently. Furthermore, the system suffers lack of communication between business, management and IT, as management lacks the realization of the contributions of IT to business performance.

c.8. Enablers to effective ITG implementations in School "C":

After the elaborative discussions with the school principal on the previous ITG practices and implementations, he was questioned on what he might consider to be the most important enablers to effective ITG implementation. The principal stated that the most important enabler he has realized is the understanding and awareness of top management of the importance and the advantages of ITG implementations, moreover, the commitment and support of management to IT is crucial and should be of utmost importance. Another important factor is the existence of human resources that have sufficient expertise in ITG and in linking between management, IT and business.

c.9. Barriers impeding effective ITG implementations in school "C":

On the subject of the question on what are the most significant barriers that might impede effective implementations of ITG in school. The insufficient expertise and awareness of ITG among both senior management and IT heads in making IT related decisions as connoted by the school Principal. Another barrier is that IT not understanding business and business not understanding IT, and inefficient communication between them. In addition, the lack of external consultations or advices regarding important aspects of business-IT integration is also a significant barrier. Other barriers in terms of the school culture would be the fear of and resistance to change into a more technology based environment which would impede ITG implementations in school. This could also be due to the fact that IT is still in its early stages in school and therefore, it is only considered a supporting tool to both teaching and learning and other operational and functional processes. IT also rarely integrates into other processes of the school and doesn't prioritize well.

c.10. How well IT and effective ITG creates value in School "C"

In terms of the question regarding the value created or added due to proper IT settings and effective ITG practices, and how they are measured in School "C"; the principal stated that for the time being, and within the current ITG and IT settings of the school, IT value creation returned on IT investments is not that evident yet. Moreover, the Principal also connoted that IT performance is slightly performing within the schools expectations. Conversely, the senior manager did assert that IT and ITG implementations have created

value to School "C" such as: helping in gaining better customer and student satisfaction, allowing for better quality education and therefore, better school reputation. In addition, IT and ITG have also helped in complying with external accreditation bodies and therefore, making such processes more effective and easier. This implicitly causes the school to attract more students and therefore has an indirect affect on increasing profits. However, the school does not have any measurements of performance of IT or ITG value creation that are tangible or give precise figures yet as IT is just part of the overall school facility budgets and cannot be measured individually in the current settings. The principal has emphasized the fact that he will -along with the management team - consider improving the ITM and ITG practices in school as part of the schools improvement plans starting the current academic year.

It is important to mention here that the overall ITG performance of the school was 44.3 which is below average and is considered very low. According to the top management's responses in the main survey, ITG has very minor influence on cost effective use of IT in school and on the effectiveness of using it for growth. However, it is perceived to be more successful in assets utilization and resource management, controversy, the school doesn't use IT effectively for business flexibility and growth.

c.11. What ITG frameworks are implemented in School "C"

After an elaborative discussion on the ITG frameworks that are used as standardized formal frameworks to ensure effective ITG implementations. The principal was asked which framework the school might be using currently. His answer was that the school is not using any of these frameworks as they had no idea about these frameworks and that the IT department is responsible for ensuring the quality of management of all IT aspects in school. In some cases as a requirement of the ministry of education or other accreditation bodies, some standards need to be met.

By considering the above case study of School "C" , School "C" has a low it maturity level of "1" and it is comprehensible that School "C"'s top management has very basic knowledge regarding the value that IT can create to the school's business. It is also concluded that the ITG implementations are very simple and are in the form of ad hoc tasks that are considered upon demand and request. This might be due to the fact that the school is in its initial phases of setting up its infrastructure and has not reached a level of maturity in its

process settlements. This agrees with the findings of (De Haes & Van Grembergen, 2006), as they found in their study on ITG maturity levels in Belgian companies that the low performers were still in the initiation process of setting their ITG implementations that basically was concentrating on change management, setting the infrastructure and creating awareness and so forth. Therefore, the structures and processes were less important than the mechanisms required to motivate people and create awareness and set procedures at the infrastructure building phase.

IT and business are not well aligned, as IT is viewed as a supporting function rather than a strategic partner. Top management are not engaged in IT related decision making only when necessary such as exposing the whole school to the threat of loss of profit or reputation. The school also does not have a member of the IT department in the management team nor does it consider IT aspects of importance on the management's agenda.

The importance of ITG is due to the reach of intangible goals that indirectly lead to increase of profits. However, the school faces a number of inhibitors that impede it from realizing the true benefits of ITG which are basically human factors more than being financial obstacles. Such inhibitors include resistance, and lack of experience in ITG due to unawareness of the importance of ITG. It also includes lack of linkage and communication between the management, IT and business units don't fully understand each other. The main enablers to effective IT as seen by the top management of the school is the managements awareness of ITG potentials and their commitment and support to such practices, although within the common settings of the school this is missing due to insufficient expertise in the field. Another cause to good ITG is the existence of human resources that can bridge the gap between business, leadership, and IT.

In terms of the conceived returned and created value of IT, the school has not yet reached a level of measuring the returned value in isolation of other school facilities and services, nevertheless, there is a realization that implicitly IT and good ITG does have a positive effect on the school's overall effectiveness and therefore has impact on increasing ROI. Basically the school finds that ITG has an impact on intangible goals that is reflected in better customer satisfaction and less teacher turnover, this leads to increasing profits, however, it cannot be proven yet.

School "C" has no formal frameworks implemented as they are still in the initial phases of building the IT infrastructure and structures. There are very simple internal audits done by the IT department or as a part of a process in meeting overall standards and requirements of external accreditation bodies such as the Ministry of Education or UK educational boards.

Case Study 4: School “D”:

Due to the fact that interviewed school was located in Fujairah which is in another city, the interview was conducted via phone call, for around 2 hours with the school Principal. The school has completed the main survey online in round one. As for the case study phase, a copy of the interview questions were sent a week in prior to the agreed interview date along with the invitation to take place in the study to allow for any necessary preparation.

d.1 Introduction- School “D”'s Profile

School “D” is an outstanding school in Fujairah that was founded in 2001. After the success and outstanding performance on its other campuses in Abu Dhabi and Al Ain city, it was decided to open the Fujairah branch. It is considered a large school with state of art facilities, and an approximate number of over 4000 students in all its campuses with more than 200 staff members. The annual profits of the school exceed 25 million AED.

In terms of its IT aspects, the school has state of art IT facilities not only for the teaching and learning process but also at functional and operational levels. It has adequate IT resources including a very interactive school information system, and a decent high class website. The school is connected with the other branches via a centralized system that ensures consistency and uniformity within the whole organization. Likewise, the school also considers IT as part of its strategic and tactical level, and therefore, it has a centralized IT strategic committee in the mother school that caters for all technology projects and requirements of the other two schools. The IT strategic committee consists of 10 specialized IT staff members, with a devoted manager that reports directly to the school's board and is part of the management team. The team also consists of a number of application developers and network administrators. On each campus, there is an IT department of 6-7 staff members where one is the head of department. The IT department is responsible for not only teaching IT as a subject in school within the curriculum, but to provide the adequate training for staff to be effective technology users, in addition they are responsible for insuring that the overall IT systems and functions are well functioning. A technician and a network administrator are also available on each campus to ensure all systems are error free and the workflow is up to its maximum capacity. The head of IT in each school reports to the main IT steering committee in Abu Dhabi's mother school. The school also has intranets and wireless connections in addition to the

established connections between the three branches. It also has advanced technology in all classrooms in addition to the computer and language labs. The school even has a video conferencing lab for students use to socialize with students on the other campuses. With all this technology in place, the IT steering committee is aware of the need to ensure security, privacy and maximum procedures to avoid data loss using well managed back-up systems. Top managers support IT and believe in its role in creating differentiation and distinction in different aspects of their business, therefore, they consider IT to be a strategic partner to their business and support it vigorously. IT is thus, given a large budget for innovative projects and initiatives that create value independently of other school facilities and services.

d.2 Vitality of IT in School "D":

The vitality of IT to School "D" is obvious from its profile. The principle emphasized the fact that IT is part of the school's main concerns, and is of utmost importance in all aspects of the school. According to the principal, IT is part of the organizations top commitments and is considered a strategic partner to the school business. Therefore, the school has a devoted IT strategic committee that is totally responsible for the linkage between the businesses need from IT. Likewise, the strategic plans of IT are parallel to the business strategies of the school and harmonize with them to achieve the overall proposed organizational strategy. Top management team including the IT steering committee; ensures that IT and business understand each other. Moreover, IT is always on the board's agenda, IT projects, and investments are given priority if they promise to add value to the organization. IT is part of the board meetings and is on their agenda, the discussions are usually regarding the improvement of IT operational performance, role of IT in future business success, the contributions of IT to all school processes and to innovation, it also consists of IT related risk analysis and methods of reducing IT costs and increasing IT benefits. The Principal also highlighted the fact that IT also has an innovative role in school and is responsible more than other divisions to come up with innovative ideas, and creative solutions that help in putting the school on the competitive edge of the for profit market sector. IT decisions are made by the steering committee to choose best IT investments that are suggested by the IT steering committee or any positive initiative made by staff or other authorities.

In regards to IT resources, IT resources are adequate and support the IT and business strategy effectively, as mentioned before, IT has a devoted budget, and prioritizes well if approved to add value to the overall effectiveness of the school.

d.3 Business/IT alignment in School “D”.

Regarding the alignment of business and IT in School "D", the Principal claims that they are well aligned, IT, and business work in harmony with each other. Both IT and business communicate well, as IT understands the business needs and vice versa. The schools top management believes that IT brings value to the business and has shared plans, goals and risks therefore; this reflects on many different aspects where key performance indicators measure this added value by IT. As another alignment indicator, IT reports directly to top management, business, and IT strategic planning is well integrated. As mentioned before, another alignment indicator is the existence of an IT steering committee.

d.4 Why IT and ITG at School “D”?

IT and ITG are important in achieving competitive advantage and staying abreast in the educational business sector, as perceived by the Principal when questioned on whether he perceives that there is a need to effective ITG in the school to gain value and remain competitive among other schools in the business sector. The Principal stressed the fact that IT helps in reducing costs and therefore gaining long-term profitability and hence, increases profits in terms of financial aspects. As far as the overall efficiency of the school, the Principal believes that IT increases school efficiency by properly allowing for resources to be managed and by managing risks associated with IT effectively and efficiently. In addition, the Principal sees that ITG helps via positively affecting the school procedures by allowing all processes to be well managed and by holding personnel's accountable for the processes they are responsible for. Effective ITG has helped in increasing the efficiency and control of all IT functions such as reduced downtime, good access to the website, less operator errors, reduced data loss, reduced problems in school information system and so on. ITG helped in declaring effective roles and responsibilities regarding IT as affirmed by the school Principal. This is due to the fact that the school has a well set IT strategic committee that has clear job descriptions for all workers this lead to the well management of IT in all schools.

ITG is also seen to be important by the Principal, in a way that it helps to control IT related costs, and to assure expected benefits from IT are achieved although not measured properly yet.

Other factors that the Principal has affirmed to be an answer of why IT and ITG is important in creating competitive advantage for School "D", was that IT and effective ITG helps in gaining stakeholder, and shareholders contentment, trust and satisfaction. This is due to the school's overall success and by the positive sentiment of the affects of IT on profits, ROI and reducing costs therefore, giving them an ease of mind on the proper management of their investments in the school. All of this has an effect on creating more competitive advantage over other schools in this business sector; as suggests by the principal. From his point of view he, finds that all these advantages of IT and ITG help in giving new innovative ways of being abreast of the market, and to find new methods of reducing costs, increasing profits while also satisfying both customers and stakeholders.

d.5 Drivers for implementing ITG in School "D":

When questioned on the reasons that mostly drive the school to opt for effective ITG, the Principal stressed the fact that the most important drivers of ITG in school is the need to deliver value through IT hence, creating differentiation and competitive advantage over other schools. In addition to the importance of ensuring compliance with legal national and international requirements of different educational authorities such as ADEC and other international educational association. One of the most important drivers also, is gaining stakeholder trust and satisfaction hence, gaining high reputation.

Current ITG practices in School D:

As for the ITG practice implementations available in school b, and after an elaborative discussion on what is meant by ITG practices, a list of samples of best practices were provided to the Principal including structures, processes, and relational mechanisms. The Principal was asked to mention the ITG practices that are implemented in School "D". The following table(19) summarizes the best practices implemented in school as mentioned by the Principal of School "D".

Table 19: Case Studies- ITG best practices in School "D"

ITG best practices in School "D"
IT related decisions are taken at board level, involving Senior management and IT management.
IT and business are aligned as much as possible.
IT roles and responsibilities are clearly defined in terms of ITM and ITG. All involved staff know their delegations and responsibilities and know who to report to.
ITG is a vital part of the overall governance of the school and is an integral part of it.
The school has an IT steering committee at the level of the board which ensures that IT is on the management's agenda. The committee also participates in any strategic decisions where IT can get involved to create value for the business. There is a direct line of reporting between the management and the IT steering committee.
Members of the school board have good experience in the vital role of IT and its importance to the business. For more technical aspects regarding the prioritization of IT projects, the IT steering committee does the proper feasibility and cost benefit analysis.
IT and business understand each other very well, as the school has educational, business and IT experts in the field that work together to integrate well to determine the business needs.
IT security, safety, Risks, and compliance to regulations are part of the IT steering committee team and are well managed and controlled.
IT policies are clear and well articulated to all IT staff and involved members in all school branches.
Although still at early stages, the school has some measurements of IT performance in place.
Business is involved in setting and approving IT strategic plans
IT budgets are well controlled and monitored.

It is interesting to mention here, that School "D" has a number of good ITG practices in place. Basically, these practices are at top management level and are more administrative initiatives. The well communication between different management members is obvious and overcomes many practices that are missing. Having a clear vision along with the believe of the role of effective ITG implementations, has led to good management commitment and involvement although education might hardly understand the value IT adds from a business perspective, however, the well communication between business, IT and education has overcome this gap successfully.

d.6 Level of ITG Maturity of School "D"

According to the responses of School "D", in the main survey in terms of the perceived level of ITG maturity the top management perceives the school to be at level 4 on a 6 level scale with an ITG performance rate of 80%. During the interview with the school Principal, he was asked about the reasons that might have resulted in positioning the school at this level. He responded that the top management has a clear vision and knows who the customer is and what he wants. This allows for the school business to understand that IT works in alignment with the business and integrates into its overall strategy. Everyone

knows their roles and responsibilities clearly and communication between both IT and business is effective.

The Principal also affirmed that some measurements of ITG effectiveness are in place, yet informal; these include KPI's, service measurements, and satisfaction of stakeholders. IT is successful in the functional, operational and strategic level, however, in the tactical level, it is still limited, based on the enforced standards and techniques used. ITG activities that have proven to be working are tracked and well articulated to all the senior management team to benefit from the best proven to work practices, so they become part of the school's culture. When the Principal was questioned on why he didn't define the ITG maturity level of school to be higher at position five, he stated that "the school still needs to formally use ITG and all members of the team need to understand the power behind this terminology". Where he explained that, although the school has all these processes in place and believes in the value of IT and its role in the school business; there is no formal solid understanding of ITG issues and solution. This all depends on the IT steering committee's planning and strategy which depend on experience and research but have never introduced "ITG" in a formal manner. Another drawback is that there is no high level training on ITG for managers where the concept, benefits and awareness can develop. Such training is essential to help non-IT people understand what "IT is saying and what value it can add". Moreover, the Principal also stressed the fact that although IT is pervasive in the school, the ITG practices and issues are not communicate to all staff members, in fact, they do not have a bare idea of what it might mean. Another significant drawback is that although the school perceives the values of IT and its effects on different aspects of the school including profits, there is no formal measurement in place yet that can accurately define the return on IT investments precisely.

d.7 Enablers to effective ITG implementations in School "D":

As for the enablers to effective ITG, the Principal of School "D" mentioned that the most important enabler to effective ITG is the executive support and commitment for IT in addition to the good communication between the business, management and IT units. Another enabler of effective ITG in School "D" as viewed by the management is having a devoted steering IT committee that is part of the strategic management team.

d.8 Barriers impeding effective ITG implementations in school “D”

When discussing the barriers that impede School "D" from implementing more effective ITG practices in school. The Principal's response to this question was, that there are a number of barriers that exist as mentioned before (see section d.7 *Level of ITG Maturity of School “D”*). The most important barrier that the school faces is the lack of training and awareness of ITG. Currently ITG is taken for grant in an intuitive manner in a form of reaction to different conditions, then becomes an agreed action if it proves to work, hence having orientations or training on ITG at management level is required to have business, management and IT all understand the same terminologies. Another barrier of better ITG implementations is the lack of involvement of stakeholders in ITG aspects, as this only limits ITG implementations and issues of ITG to be within the management team. Other stakeholders don't get involved in any IT/Business decisions which is a drawback as this is a very important resource of improvement and can lead to school development that might not be seen from inside. Finally, the other important barrier is the lack of proper measurements of the returns of effective IT and ITG; where there are no real measurements in place that allow evaluating the real benefits returned from IT and ITG. For the time being, it is a matter of implicitly measuring the value via stakeholder satisfaction, turnover rates, enrollments, compliance with governmental and international IT standards, reduced complains. The problem stands here due to the fact that it is hard to isolate IT from other facilities and the rate in which it has positively had an impact on these variables. Although there are very well established communication lines between IT, Business and Management, there is still a gap in realizing the potentials of IT by business and of the business needs by IT, *“we need experienced people that can talk both IT and business at the same level”*.

d.9 How well IT and effective ITG creates value in School “D”

Regarding the question on the value created by well managed and governed IT and how this value and performance is measured. The Principal mentioned that he strongly agrees that IT investments have created value for the school although ITG is still not implemented, as it should be. In its current status, IT is highly performing within the management's expectations *“but it can even do more to outperform our expectations”* as the Principal said. The perceived value that IT returns to the school as denoted by the Principal and the

management team that also were consulted regarding this question, can be summarized as adding value to the overall organization effectiveness. This is achieved via helping in gaining better customer and stakeholder satisfaction, decreasing turnover rates and increasing staff and student retention that is by providing facilities that make their lives' easier, more communication and more knowledge sharing that allow everyone to ensure proper career development and work support. The team also sees that ITG has added value by better reputation and trust of stakeholders and shareholders, due to clear processes, proper investments, proper services, and processes. Value creation is also conceived by the management team in terms of satisfaction of community, school inspection authorities such as ADEC, reduced complaints, less down time in servers and in other IT aspects.

Furthermore, ITG with all processes well defined and clear communication and reporting lines defined, allowed for innovation and creativity in bringing in new technology that helps in creating more competitive ideas that allow the school to be more effective and to achieve sustainable growth and outstanding performance.

All these factors lead to more effective and efficient processes to be in place, hence, leading to reducing costs, and increasing profits therefore, allowing the school to be on a competitive edge when benchmarking with other schools, the number of students enrolling yearly and the annual growth rate compared with other schools in the same business sector are annually growing. In terms of how IT and ITG value is measured in School "D", the management team also answered that they are doing their best in measuring the returned value of IT compared to its high investments. Although the school clearly perceives the value of IT and ITG, it unfortunately does not have clear measurements of IT performance such as ITBSC. Likewise, the school cannot precisely define the benefits of IT compared to its investments explicitly as proper analysis of investments vs. value creation have not been considered to be very effective yet, in spite of using KPIs for all business aspects including IT.

d.10 What ITG frameworks are implemented in School "D"

When the management team was questioned on what ITG frameworks they have implemented in their school, the IT steering committee manager answered that they have

not yet implemented any formal standards of ITG frameworks, but plan to do so in the near future. The team is only enhancing the IT systems and services in school according to the ITIL framework but highly customizing it to meet the schools needs, as they still have a lot of processes and procedures that are shaping up and have not fully been completed. This is due to the fact that the school along with its other branches is starting to reach a mature level of IT, the standards and audits and quality assurance of IT is monitored and controlled by the IT steering committee and the top management internally, and by the requirements of the MOE and other educational bodies externally. Going for ITG frameworks such as COBIT will be part of the IT strategic plan for the coming years after gaining the proper training.

By summarizing the ITG implementations in School "D", it is obvious that the school has a number of very well defined structures, processes, and relational mechanisms in place. IT is vital to the school and is an integral part of the school's overall strategy. There is a good awareness of ITG among the top management although not officially understanding the terminology "ITG" but in the form of intuitive reactions taken to increase the IT effectiveness in school in avoiding risks and increasing value. Moreover, the vitality of IT is translated into a number of good ITG practices such as the establishment of a devoted IT steering committee that is part of the management team. The importance of IT is also reflected in having IT on management's agenda as a priority. The identification of potential investment opportunities involving IT is the responsibility of the IT steering committee, who then along with the top management decides on the proper selections of IT investments as a team. Realizing the value from IT investments is basically the role of the management team with the IT steering committee and reports from the accounting department.

The IT strategy is well aligned with the business strategy and is integrated into it, although there is a level of involvement of top management in setting the IT strategy, it mainly is the responsibility of the IT steering committee.

In spite of having a number of well-defined ITG practices, the school still lacks some professional practices that might help in gaining more business value from IT. Such missing practices include full awareness and literacy on ITG and its frameworks, in addition to improper performance measurements of the value added via IT.

Management's commitment and support in addition to well established communication lines between the IT and business units are CSFs for the school's current ITG maturity level of 4 achieved by the school. The school uses the ITIL framework to support its services although not fully implemented. There is a future proposal to opt for COBIT to enhance all ITG processes in the school after reaching a maturity level of effective IT structures as attempted by the top management.

Case Study 5: School "E":

The fifth school in the case study is one of the known for profit private schools in Ras Al Khaima (RAK) , the school was invited to participate in the study via an email letter to the Principal. The email explained the purpose of the study along with a copy of the round two questions in prior to setting an appointment for the interview. Due to the far distance of RAK, a telephone interview was requested at the Principal's convenience. The interview took a time span of two hours and some questions needed further declaration afterwards through follow-up telephone calls. The following sub-sections briefly summarize the answers of School "E"'s Principal to round two's case study questions.

e.1 Introduction- School "E" Profile

School "E" is a school located in the Emirates of Ras Al Khaima. The school was founded in the late 1970's and offers UK and international curriculum. It has more than 1000 students and more than 100 staff members. The school has more than 10 years of experience in using IT. IT is part of the schools taught curriculum from k-12. It is considered a good school with a very good reputation.

In terms of IT in school, the school believes in the powerful role of IT in creating competitive advantage with regards to other schools in the area. Basically this power comes from its supportive role to both teaching and learning in addition to ITs role in managerial and administrative chores. School "E" has a computer department consisting of an HOD and another 5 staff members. The school also has a devoted IT programmer and a technician which are part of the administrative ancillary staff. School "E" has a wide variety of IT resources to support its goals academically, functionally and operationally. Its IT infrastructure includes a large number of computers for teaching and for administrative tasks, in addition to intranets, and internet connections. The school has a decent website, and a student and staff portal that is basically used as a bulletin board to send notices and information to all staff and students associated with an email account for all staff members. The head of IT department is not a member of the senior management team, nor is he part of the strategic planning team in school. IT is only on the senior management's agenda when it needs to be discussed or decisions need to be made. IT is considered an enabler to overall business plans instead of being a strategic partner. The

school top management perceives IT to be somewhat important in delivering the schools strategy or vision. The Head of IT and IT staff have a very limited role in informing the senior management about potential business opportunities enabled by new technologies. Although the school believes in the role of IT in teaching and learning, the management does not believe that IT should be discussed at executive level.

e.2 Vitality of IT in School "E":

During the telephone interview, the Principal was asked about how vital he perceives IT to be in School "E", he mentioned that IT is vital in terms of raising academic performance and in enhancing teaching and learning, it is also vital in terms of supporting administrative tasks and many other managerial chores. Although the school does have an IT department and a head of IT, IT managers are not part of the top management committee. Moreover, IT is only on the management's agenda when needed. IT strategy is planned and set by the head of IT department and then discussed with top management just like any other school facilities or services. The head of IT is responsible of informing the senior management about the value returned from any IT investments theoretically, as no access is given to heads regarding any financial aspects in school. The accountant literally evaluates the perceived value, conversely, he has no prove of the real effect of IT in place as it is part of the overall facilities and services data. The head of IT is only consulted when solutions to management decisions need to be made regarding an IT solution or supporting tool. The IT strategy is the responsibility of the Head of IT department and the school management team does not get involved in setting it up, it is considered one of the departments just like any other department in school. The only IT aspects that are give priority in school's annual plans are the ones that add value to the overall school aspects such as smartboards to the teaching and learning process, the website to communicate with stakeholders, the school information system to allow data analysis and information sharing. Other than that, other initiatives are given the same priority as any other department's demands would. The link between the IT department and the business unit is not to be mentioned, as the only time IT gets involved in business is when IT is requested to provide suitable offers or proposals for suggested systems or devices, hence IT gets involved in business strategy only rarely. The school would go for guidance, advice and solutions regarding IT strategic decisions that

might affect the schools overall effectiveness and decisions to external advisors, or the educational authorities that require specific settings such as Cambridge, IB or others.

e.3 Business/IT alignment in School “E”.

Regarding the extent to which IT and business are aligned in School "E", the Principal declared that IT still doesn't understand business nor does business understand IT yet. IT and business have not yet reached a level of integration in school. IT is rarely part of the school's governance arrangements. The Principal also mentioned that IT is on the agenda only when required. The school doesn't have a CIO but has a head of IT department who is responsible for managing all operational and functional aspects of IT. Nevertheless, he is not involved in the strategic level by any means. The Principal mentioned that, IT is seen by top management to only deliver value indirectly by increasing customer and staff satisfaction, hence attracting more students to school and reducing turnover rates among staff. Additionally, IT supports the management via the school information system and via website and email. There is a limited awareness of IT by business and vice versa. Therefore, it can be said that IT is an enabler, not a driver to business, and support the school's business just like any other service or facility does. Regarding the metrics of business and IT alignment, the Principal declared that business has its own metrics and so does IT, there are slightly ad-hoc metrics with no clear relation between them.

e.4 Why IT and ITG at School “E”?

School "E"'s Principal believes that the school needs IT, ITM and ITG to some extent to competitive with other schools in the same market. This is due to the fact that stakeholders request to have the latest technology implemented in the school they choose for their children; hence, this is one of the features that attract more customers to enroll to the school. Likewise, teachers become more creative in delivering their teaching and learning via the use of technology therefore, the students perform higher in their external exams which also bring customer satisfaction and trust. This could not be achieved if IT was not well managed and governed. The top management does definitely believe that IT brings in value to the school but cannot isolate the benefits it brings in from other factors. The top management also sees that ITM and ITG help in efficiently controlling IT functions

by reducing operation errors and application failures, server downtime, accessibility and other issues. It also helps in reducing risks such as controlling privacy, security and reducing data loss. Governance also helps in improving the quality of services the school is providing, high quality services can help in gaining competitive advantage, and this could be gained via high quality IT services that are well managed. Well planning and selection of IT investments helps in gaining shareholders and stakeholders trust and satisfaction hence resulting in increasing profits and ROI although accurate figures are not yet obvious. Overall the Principal denotes that successful implementations of ITG helps in increasing overall school effectiveness and increases organizational success if it was integrated into business properly. This requires full top management understanding and realization of the potentials of IT and its value to business, which is difficult to have for educational specialist with a little literacy in IT.

e.5 Drivers for implementing ITG in School "E"

Regarding the drivers that might be considered in implementing effective ITG, the Principal declared that the most important driver to effective ITG implementations is the compliance with requirements of external regulations such as the MOE and external examination center boards. The second most important driver is the stakeholder demand of parents and customers to gain their trust and satisfaction. Finally effective ITG helps in improving performance and hence allows for increased competitive advantage compared to other schools.

e.6 Current ITG practices in School "E":

A thorough discussion regarding what are ITG practices and examples of such practices took place between the interviewer and the Principal. The Principal was then asked to mention the ITG practices implemented in School "E". The Principal mentioned that although the ITG concept is totally new to him, but from his understanding of what has been discussed throughout the interview, he has concluded that there are some informal ITG practices in place in School "E". A summary of some of the practices the Principal has mentioned during the interview are summarized in the following table(20):

Table 20: Case Studies- ITG best practices in School "E"

ITG best practices in School "E"
There is a minimum IT expertise at board level regarding the value and risks of IT to the business.
IT projects and initiatives are discussed with the head of IT department case by case when needed.
IT investments are important to the school and do affect the overall school effectiveness.
There is a basic awareness of the affects of IT investments added value after the implementation of new initiatives and IT projects.
IT department is fully responsible for conducting audits and insuring the quality of IT services at both functional and operational level.
The top management gets advice from external bodies such as the MOE or other IT solution providers regarding best IT investments that add value to the school.
Some forms of IT risk management are in place such as recovery and backup plans, privacy, security..etc.

After an elaborative discussion with the Principal regarding other practices such as how IT decisions are made and about having the head of IT as part of the management team, the Principal answered that unfortunately these practices are not yet in place. Moreover he also mentioned that the school does not have clear roles and delegations of IT/business functions assigned to IT staff, and it is just a matter of initiating a proposal of improvement by hearing from other schools, or by a request from the parents or other stakeholders or even staff members or the administrative staff themselves. The IT department will then just conduct a search helping in bringing best offers and the top management will make the decisions afterwards. Another missing practice is that there are no formal IT or ITG policies and procedures yet in place. The Principal also mentioned that the school also doesn't have proper IT value measuring metrics to envisage the real value IT is bringing to the business. The Principal then quoted that: *"IT might be bringing in value that exceeds our expectations, but unfortunately the question is how can we know?"*

e.7 Level of ITG Maturity of School "E"

Based on the perception of the maturity of ITG School "E" was positioned at, and in accordance to the principals respond to the question on the main survey regarding the responsibility of the board of directors and executive management in ensuring that the school's information technology sustains and supports the school's strategies and objectives. Where the respondent was given six statements representing the 6 levels of ITG maturity defined by (ITGI,2003). The school Principal denoted that the school falls in level

one- *Initial/Ad Hoc* (option number 2). Moreover, two questions on the main survey requested that the respondent fills in the ITG performance matrix developed by (Weill & Ross, 2006) that was then calculated using their formula to give a percentage representing the ITG performance of the school. When calculated according to the responses on the main survey, the ITG performance rate for School "E" was found to be 40% which is below average and way below the benchmarking value of (Weill & Ross, 2006) which was 69% as mentioned in the literature review in previous sections.

The Principal was informed about the ITG maturity level and what it meant by each as defined by the ITGI institution. Moreover, he was also informed of the ITG performance rate of the school. He was then requested to give an explanation on why he thinks the school had such a low ITG maturity level and performance.

The Principal replied that the main reason for this low level is that the concept of ITG is totally new to him and to the management team. He also added, that they had no awareness of the spectacular potentials that IT can bring to the business and the awareness that they had was intuitive and is the knowledge that any educator would have which is gained through experience over the years or as an end-user. This also applies from his point of view not only to managers but to IT staff that has adequate IT skills and competencies but have no experience on how to employ IT to serve business in the form that ITG does. He also mentioned that the school is always seeking competences and business advantage by providing high-level educational services but never thought of going for cost reduction or better internal processes via IT as a source of competence. Another reason for the low performance was the culture of the school that valued IT as a functional and operational tool but never as strategic partner of the business. This was articulated of course to all staff indirectly due to the fact that IT members were not part of the management team and therefore IT rarely showed on the managements agenda.

e.8 Enablers to effective ITG implementations in School "E":

Regarding the most significant enablers to effective ITG implementations, the Principal pointed out that he believes that top management awareness, commitment and support to IT is the most important enabler. Following that factor comes, the need for well-trained high-qualified human resources that understand the link between educational, business,

management and IT needs. The third important enabler that helps in effectively implementing ITG in schools is having clear ITG principals and processes.

e.9 Barriers impeding effective ITG implementations in school "E"

Regarding the barriers that might have impeded the effective implementations of ITG in School "E", although there is a heavy reliance and believe of the vitality of IT by top management; the Principal denoted that the absences of the previously mentioned enablers are the barriers themselves that impede the implementation of good ITG. This assumption of the absents of enablers to be barriers is valid in literature as (Luftman,2000; Lee et.a.,2008) declared that some topics can appear as inhibitors and if they are absent as enablers. To summarize the inhibitors of effective ITG in School "E", the school lacks IT/business relationship, Senior executives are not aware of the importance of ITG, nor do they support it. Moreover, there is a lack of training regarding ITG training and awareness. The school also doesn't have skilled IT/Business staff on ITG aspects, and lack of clear IT processes and procedures. Additional to the ones mentioned the school also lacks clear role and responsibility delegations regarding ITG where IT management lacks leadership.

e.10 How well IT and effective ITG creates value in School "E":

According the responses of the Principal in regards to how IT and effective ITG is perceived to create value in School "E", the Principal mentioned that it is performing very well at functional and operational level, whereas, on strategic level, it is slightly performing within the school's expectations. He explained that this is due to the absents of measurement metrics that can give exact figures of IT's returned value compared to its high investments. The value of IT is reflected by the quality of services it provides and hence resulting in gaining better customer and staff satisfaction. It also helps in increasing enrollments and reduces staff turnover rates. Moreover the current IT structures although very simple, help in creating a more enjoyable creative environment which attracts customer's therefore increasing trust and reputation. As mentioned by the Principal, School "E", also believes that effective ITG helps in complying with external accreditation bodies requirements regarding IT standards which help in reducing the burden of putting extra costs to modify systems to meet the requirements. Overall, good ITG helps in creating differentiation and

provides competitive advantage over other schools hence bringing in more profits and higher ROI rates.

e.11 What ITG frameworks are implemented in School "E"

On the subject of the current ITG frameworks the school has adapted in School "E", the school Principal was introduced to the formal ITG frameworks and a brief description of each was given along with the advantages and implications of implementing such practices to any organization. When questioned on whether the school has implemented any of those frameworks, the principal replied by saying " *It is too early to talk about frameworks, we still need to setup a new infrastructure that integrates ITG into our overall school governance, once that is done, we will then choose the right framework to use...*". He continued by mentioning that the school only has very basic internal audits that ensure the quality of IT functions and operations are appropriate and are meeting the school needs. The other frameworks would probably be meeting the standards in the MOE minimum IT requirements or meeting the requirement of the IT standards required by external examination boards as part of an overall accreditation process.

To summarize, ITG maturity level is very low in School "E", where it was perceived to be at level 1 with an ITG performance rate of 40%. There is recognition that ITG issues exist in an Ad Hoc approach where it is intuitively applied on an individual or case-by-case matter. Management only reacts to emergent cases and takes decisions regarding IT accordingly. Communication between the business unit and the IT unit rarely takes place only when management requests for that. In School "E", management has a bare realization of the contributions of IT to the business, this is due to the fact that management are only specialized in educational leadership with very basic knowledge as computer users, hence not being able to relate the potentials of IT investments to the business value IT can return. Moreover, this has also resulted in directing competition to more educational based aspects of the school. Such as, introducing a wider variety of external exams, or increasing technology in classrooms as extra facilities resulting in increasing school fees. However, the school could have enhanced its ITG processes to target cost reduction by more effective processes that will gradually lead to increased profits, therefore many opportunities can be lost that might have positive effects on the

school. Communication between management, business and IT is very poor, and there is no linkage between them in strategic planning. IT specialists led by the head of IT department are not members of the management team nor do they participate in any strategic planning or decisions. IT clearly is an enabler and not a strategic partner in School "E", however, it is perceived to add value to the school's business indirectly via attracting more customers and reducing turnover rates. No clear processes are yet in place, likewise, metrics to measure IT governance are very intuitive and do not reflect the real value that IT investments might bring into the school.

The school's top management and the IT staff have no idea regarding the formal ITG frameworks hence, the lack of experience and awareness of the benefits of these ITG frameworks is obvious throughout the school's organization.

6.2 Discussion and Analysis of the Case studies:

In this section a thorough analysis and discussion of the data collected during the case study's semi structured interviews described in the previous section of the five schools participating in the study is considered. Due to the fact that qualitative data has been used to collect the case study data from the participating schools via semi-structured open-ended questions; qualitative data analysis will be considered. As in the previous section, all interviews have been transcript and re-written to express exactly the data collected from the interviewees. For each subsection, a summary of the interviewee's information was phrased to extract information in a summarized manner.

There are many qualitative strategies to deal with the collected data (Saunders, 2008). One method is to organize the data into categories to discover regularities, differences, identify key patterns and themes from the data (Dey,1993;Saunders, 2008) . The categorization of the data will be concentrating on the main areas of the research methodology (figure 27) which are:

1. Top management awareness, and recognition of the importance of ITG(this includes the perception of the vitality of IT, the importance of ITG in creating value)
2. ITG implementations and best practices in the school which include (The current practices used, Business/IT alignment, used frameworks).
3. The factors affecting ITG effectiveness (Enablers, inhibitors, Drivers).
4. ITG maturity level and ITG performance rates in each school.
5. The effect of ITG on creating competitive advantage and creating value (Perceived value created by IT and Effective ITG).

The maturity level of these five schools was captured using the main survey based on the capability SEI's model that is adapted by ITGI for its COBIT framework as an ITG maturity model. The model is based on a scale of 6 levels starting from (0 Non-existent) to (5 Optimized)(see Appendix (A): COBIT section for more details of ITG maturity levels).

The collected data was then categorized into five categories (section 6.2.1), after that the categorized data was then further compared, analyzed and discussed to understand the relations and reasons behind the behavior of ITG in the five selected schools in (section 6.2.2).

6.2.1 Case Study Data Categorization:

As mentioned above, five main areas were defined, where the all the data will be categorized into the proper category. For each of the five categories, a matrix was developed to categorize and summarize the data collected from all five case studies regarding each category to allow easier comparisons. (See Appendix D) to view in details all the matrixes of the five categories.

In the following section, a thorough comparison, discussion, and analysis of the categorized data will be demonstrated to compare the findings of the participating schools in the case study and to find relationships between the collected data in the frame of the defined areas. The categorization and comparisons will help in understating the main aspects affecting the implementation and level of ITG in for profit private educational business. Moreover, this comparison and the findings will be related to literature in general and to the findings of other educational institutions worldwide.

6.2.2 Further Discussion and Result Analysis Of Case Studies.

This chapter is devoted to analyze, discuss and compare each of the five areas defined in the previous sections which will help to achieve the research objectives defined in section(1.5). According to literature (Dey,1993;Saunders, 2008) for qualitative analysis, after the data has been categorized to logical categories that relate to the overall research objectives; similarities and differences need to be sought to find relations and to make sense of the data collected. The discussion and comparison will consider each area individually and relate it to relevant areas in literature to enrich the comparison between the five schools participating in the study. (The categories used are in Appendix D.)

6.2.2.1. Top management awareness, and recognition of the importance of ITG (this includes the perception of the vitality of IT, the importance of ITG in creating value)

In this section, the awareness of senior management and their recognition of the importance of IT and ITG implementations in school will be studied in the five case studies participating in the study. The awareness and recognition of the importance of ITG and the created value through IT, was based on the collected data from the main survey and from the semi structured interviews with school principals. The dimensions considered in this

area are the senior management's perception of the vitality of IT in the school, and the importance of ITG implementations in this school. The vitality of IT was important to understand the extent to which management are involved and aware of IT aspects in school, however, the importance of ITG examined the senior managements awareness of the need to govern all related IT aspects in school and to understand how they perceive the created IT value that results from good ITG implementations.

1.a) Vitality of IT in for profit private schools:

By considering category one (Appendix D, table (1.a, 1.b)), it is vigilant that all senior managers have at least a minimum believe of the vitality of IT to their schools although this perception of the vitality of IT varies from one school to another. School "A", and school "B" find IT to be very important, whereas, both schools C and E see it to be somehow important however, School "D" finds IT to be moderately important in terms of bringing value to the school. The vitality of IT in some schools is basically in the form of an enabler to effective teaching and learning, whereas, for others it is vital in terms of most of the operational and functional aspects. Others such as school A, and D consider it not only important on operational and functional level, but on tactical and strategic level too.

IT and Management Delegations:

One interesting fact concluded from the data, is that schools having IT strongly pervasive deem to have more organized and delegated roles for IT than ones considering it just an enabler or supportive tool. For instance, School "A", "B and "D" all have more advanced IT organization and divisions than schools C, and E. For instance, School "A", has a devoted CIO in a management position, however, School "B" has devoted IT Center providing extended operational and functional support in addition to being involved in management decisions. Moreover, School "D" has a more advanced setting that involves having an IT strategic committee which is part of the management team and ensures that IT and business are aligned in all business decisions and in achieving the overall business goals. Conversely, School "C" has a very simple IT department basically responsible for IT subject coordination and some roles of providing advice on new technology that might help in enhancing the school's operations and functions. Likewise, although the management of School "E" believes in the role of IT in teaching and learning, the school has an IT

department with an HOD that has no management authorities, the head also has very limited delegations in terms of informing the management of any suitable technology that might help in increasing the effectiveness of delivering education in school.

IT as A Strategic Partner.

In regards to the perceived importance of IT being a strategic partner in addition to being involved in making strategic decisions regarding the schools strategic and business goals, it is found that some schools have good awareness of the importance of such practice, whereas others still lack the realization of the strategic importance of IT in creating value. Moreover, some Principals expressed the fact that they only understand IT as an enabler to good educational services. Where they see that IT as an enabler, has implications on enhancing the academic aspects such as better teaching and learning, creating a more enjoyable atmosphere, better communication with parents and other stakeholders, representing the school therefore allowing wider reach, making teachers' life easier, re-using knowledge and sharing it as some to mention. All these factors lead to academically raising student's achievement and performance, hence, allowing for better reputation and trust thus, leading to more enrollments and hence, more profits which indirectly affects the school's overall strategy as a business.

The Involvement of IT Strategy In Schools Overall Strategy:

Another striking finding is the relation between IT strategy and the overall school strategy. Some schools see that IT strategy is part of the overall school strategy, hence the senior management are involved in setting the plans, prioritizing the projects, linking the IT aspects with the business goals to ensure added value to business. This is obvious in both schools A, and D, where the CIO in School "A", and the IT steering committee in School "D" participate with the management team to set the IT strategy in alignment with the business strategy to ensure IT is adding value to the school's business and finding new ways of differentiation. On the other hand, although School "B" conceives IT to be a business partner also; IT strategy in this school is set by the IT center and its external partners that suggest new projects that will add value to the business of the school and is part of the overall school business strategy. Conversely, in School "C", IT strategy is not part of school strategy, it is only called in when required to support the business decisions

made, hence IT and business strategy may be going in two different directions instead of supporting each other. Finally, School "E" perceives the IT strategy as being the responsibility of the IT head of department which the management has nothing to do with, as business strategy is totally isolated from IT strategy and are not related by all means. The only time School "E" perceives that IT strategy could be part of the business strategy is when IT is the only solution to reach a business goal or when the goal is totally dependent on IT.

The Availability of IT Resources To Support The School Strategy

The vitality of IT can also be measured in schools in accordance to the availability of IT resources to support the school strategy. This is obvious in all schools as all schools are aware of the role of IT in supporting the school strategy in one way or another; hence, different schools have different IT resources available. Some with very advanced and adequate resources, and others with bare minimum technology needed only to meet the demands of stakeholders such as parents in requesting latest technology for their children. The adequacy of technology in school depends on the support of management and commitment to IT. In schools A,B, and D, it is clear that the management support IT and have a commitment towards its role in creating value, hence, IT investments and budgets are controlled and prioritize well. However, in schools like C, and E, IT only gets a slice just like any other school facility or service, therefore, resources, and budget allocation only depend on the need for new IT resources if budgets are available. Additional, in both schools C, and E the resources help indirectly to achieve the schools strategic plans by making available technology to reach stakeholder satisfaction, hence increase reputation and trust, therefore, drawing more profits to the school.

1.b) Senior Managements' perceptions regarding the benefits/Advantages of ITG in creating value.

The perception of Senior Management in regards to the created value from implementing effective ITG is summarized in the following section:

Managements' awareness and recognition of ITG concepts, and how they can add value to an organization:

Schools perceptions of the importance of managing and governing IT differ depending on the amount of technology used in school, which depends significantly on the senior management's experience and perception of the value that IT can bring to the business. In addition, the perception of the Importance of ITG is also affected by the level of maturity of building the infrastructure of IT in schools. When considering why the schools perceive IT governance to be vital in creating value to the school; it is observant that all schools believe that ITG is required somehow, and is needed to create value to the school whether explicitly or implicitly. However, it is clear that most school principles had no idea of the concept of ITG, where others had an idea but were not familiar with the terminology "IT Governance". Other principals had a clear idea of the concept, but were relying on the CIO or the devoted IT strategic committee to take over these tasks and inform and orient the top management regarding ITG.

ITG helps in improving school's processes and increasing stakeholder satisfaction and trust.

By analyzing the responses of senior managers, it is attentive that all managers agree on the fact that ITG is important to have better control over all IT aspects in school. Moreover, they also all agree on the fact that good ITG practices help in attracting more customers due to the fact that it allows for better teaching and learning which creates an enjoyable environment for students. In addition, Good ITG makes teachers lives easier in being able to deliver education in less time and effort, hence, teachers are more satisfied, and hence, retention rates are reduced. Another factor is the re-use of resources which allows for a repository of knowledge in school that allows teachers to share and re-use year after year. Hence making knowledge sharing more effective in the school, and reducing or eliminating the negative effects of teachers leaving the school carrying with them all the information and resources that might be an accumulation of years of work, hence new teachers have a wide variety of resources to use while maintaining consistency and attaining the same level. In additional to these advantages of controlling IT in schools, the principals also believe that creating an enjoyable interactive environment is one of the

most important factors parents consider when selecting a school, hence, enrollment rates increase.

Helps in increasing IT functionality

Furthermore, with well controlled ICT functions and operations, all Principals agree that this helps in increasing IT functionality and processes while reducing errors. This factor is very important in terms of ensuring effectiveness and efficiency of operations relying on technology, it also ensures that stakeholders use the school systems with ease and hence increases stakeholder satisfaction and reduces complaints.

The need for effective ITG to control and monitor IT resources

Another common ITG advantage perceived by all senior management in the case study was the need of effective ITG to control and monitor IT resources. This may be due to the large investments of IT that consume a lot of the school investments, regardless of the importance of having such IT resources and their quantity; IT resources require high investments compared to other school facilities and services. By not having good control over such resources, the school could be overwhelmed with costs that do not bring in the proposed value they claim to add. Examples of such cases as mentioned by some schools, is the outsourcing of developing customized school information systems, which consumes high investments and school resources. Unfortunately, in most cases these systems turns out to not be what the school really wanted, this is due to the lack of communication between education, business and technical IT people who in most of the times don't understand each other, hence the final products may be just a waste of school resources. Therefore, all principals agree that ITG is needed to control school resources and to ensure IT investments are properly put in place.

Providing better services to customers and stakeholders

Providing better services to customers and stakeholders are another common advantage of ITG, as all principals perceive, in additional to the reasons mentioned above. Many schools find that effective ITG can help in improving services. This is achieved by reducing errors in school information systems, and interactive web portals, ensuring respectful well managed websites that ensure wider reach to customers, better accessibility to school

resources, better communication channels, availability of educational resources to both staff and students, ensuring well knowledge management and sharing in the school's organization, reducing complaints from all IT systems, reduced data loss and malfunctioning in systems, reliability of systems and less downtime. All these factors help in increasing customer and stakeholder satisfaction regarding the provided school services hence bringing better reputation to the school.

Better compliance with national and international regulators and education authorities

Regarding the advantage of having effective ITG in schools, all principals also have mentioned that effective ITG in schools allows for better compliance with national and international regulators and education authorities. The level of which schools consider this an advantage varies as some schools perceive ITG to be very effective in achieving this goal while other such as School "E" sees that in some way it does help. ITG has helped in achieving this goal by ensuring that the IT systems are flexible enough to meet the standards and requirements of the educational boards as a requirement of the fulfillment of meeting the standards of quality of IT implementations in schools. Examples of these educational standards are ADEC, KHDA and the MOE locally, and other boards such as CITA, AdvacED, Cambridge, IB internationally. Schools like A and D even went further, as School "A" considers an advantage of effective ITG to be helping in complying with ISO standards as part of overall quality assurance of the school. The compliance to regulations took another direction where the principals believe that this also includes complying with international IT regulations such as having better control on privacy, piracy, computer copyrights, Data Protection Acts (DPA) and software licensing. These factors are very important to be controlled and monitored properly, where any breach to these legislations might be extra costs added to the school in addition to losing reputation and trust of stakeholders.

This finding is interesting in terms of the value IT and ITG bring to the school business industry in terms of creating value via educational services which has a different dimension from other industries. The added IT value in the above-mentioned cases are all something common between schools as it agrees with the educational business strategy and brings in added value that aligns with the schools vision of delivering quality education while making

profits. Hence, the purpose was to raise educational service delivery via providing enhanced methods of education delivery to gain customer satisfaction, and attraction therefore, leading to higher profits. The type of value created here is due to perceiving the value that IT brings to the school business as an indirect resource, as the main goal was to use IT to enhance services and education resulting in affecting business outcomes indirectly. This might be realized by some principals while others may have just taken it for grant, as any other facilities would affect schools' business in the same way.

Increasing profits via cost reduction

Some of the schools in the case studies took a more advanced approach to creating value for their business via effective ITG. These schools had more experience in IT and more awareness of the value IT can create for their business. This might be due to the fact that they have been in the business for longer years in addition to overcoming the initial phases of structure building of IT infrastructure in the school, hence going into a more mature level that starts realizing the returned value of IT instead of just being a cost center. In addition to IT bringing value via enhanced educational services and facilities as discussed previously, schools like School "A", B, and D find ITG to bring in more business-oriented value to their school business. Some advantages of implementing ITG in schools as seen by three schools is that ITG helps in reducing operational and functional costs hence, increasing profits. This happens via the proper control of costs on assets and IT aspects. Additionally the costs may be reduced by enhancing operations via the use of effective IT systems that helps in reducing labor, and in reducing the need to purchase teaching material where the knowledge sharing is fully under control and knowledge repositories are available to all. Moreover, it also helps in cost reduction via the creation of new methods of staff development via sharing knowledge and best practices which reduces the need for high cost training and professional development. Other reduced costs due to effective ITG implementations, are the costs needed to customize systems according to the needs of different accreditation boards or national educational authorities. Good control over IT systems and the involvement of education, IT and business professionals in making decisions helps in increasing the flexibility of school systems to comply with such standards and regulations without the need to put extra costs of modifying or creating new systems. Moreover, maintenance costs and adjustments costs are also reduced via effective ITG due

to the fact that systems are customized and developed to meet business and educational needs as IT has a good understanding of their needs therefore, reducing the later on costs of modifications and maintenance. Another form of cost reduction as perceived by the school is the use of electronic systems to share data and information including staff, and students and other stakeholders. This form of exchange has allowed schools to reduce costs due to the consumption of paper, textbooks, high cost computer ink, photocopying costs and even publication costs as a few to mention, as all of this has been replaced to some extent with electronic forms of data sharing and communication. With well ITG and ITM, schools have controlled costs that might result from the breach of complying with regulations such as high fines of not complying with copyright, licensing, and DPA legislations.

Well management and control of IT related Risks:

Due to the rapid growing use of technology in schools, some schools are realizing the risks associated with the use of IT to their business. However, these senior managers believe that avoiding IT related risks might result in losing many business opportunities. This agrees with (Cox,2005)where he denotes that risks cannot be totally avoided, without forgoing business opportunities associated with new customer types, new technologies, new markets, products, or trends. In other words, risk avoidance is by itself risky; were it might limit the organizations opportunities for profit. Therefore, schools like School "A", "D" have IT risk management as one of their top concerns and are highly on management's agendas. Tracking and managing these risks is the responsibility of the CIO or the IT steering committee which are part of the management team. These schools have good awareness of IT associated risks such as risks associated with IT investments, IT projects, with security, safety, privacy, copyrights, personal data protection, data loss, hardware failure, as a few to mention. Moreover, they also understand the fact that risks need to be balanced with the opportunities that might be lost in not accepting these risks such as investing in new technology, or school information systems.

Better management of IT investments hence gaining shareholder trust.

Due to the high costs of IT investments, many shareholders find investing in IT a threat of losing this capital. This is true if the investments were not properly considered and proved

to feasibility return value that exceeds the costs of investment. With proper ITG in schools, School "D", and "E" believe that controlling IT investments can increase shareholders trust on how the school is making use of their investments to bring value to the overall school business. Moreover, considering new methods of increasing profit such as cost reduction, and increased stakeholder reputation and satisfaction also gives stakeholders a peace of mind that their investments are properly managed and used.

ITG brings overall school effectiveness and ensures competitive advantage.

From all the above mentioned advantages of ITG and the benefits it brings to business, three-quarters of the schools believe that ITG is essential in increasing overall school effectiveness, and in being important to achieve competitive advantage over other schools in the industry.

By considering the discussion on the first category regarding Top management awareness, and recognition of the importance of ITG via their perception of the vitality of IT, the importance of ITG in creating value; it can be concluded that there is a good level of awareness of ITG concepts among all schools regardless of the level of ITG value realization. The realization of ITG value creation is found to be very simple in schools that are still in the initiation phase of building IT infrastructures, however it is more recognizable in schools that have overcome this stage and went into a more mature level of IT implementations. This is expected, as the schools that have already set the basic foundation of IT infrastructure moved into setting the processes and relational mechanisms of IT implementations in their schools. In addition to the fact that these schools have considered IT as a new method of differentiation and achieving competitive advantage over other schools in the industry where they have reached a high level of competence in other educational aspects such as high qualified teaching staff, outstanding leadership, state-of art facilities and so. Hence, reaching for new horizons of competition via the use of larger quantities of technology and higher qualities required considering different methods of managing and governing all this technology to add value to the business. Therefore, although some schools' managers still lack the understanding of the term "IT governance" on its own, they do understand the need of ITG via curves of experience that have been taken for granted as a management skill to take full advantage

of technology opportunities in adding value to the business. In addition to the learning curve that has formed as an accumulation of trial and error in attempts to avoid errors and retain best practices that prove to be working regarding IT, and hence have become part of the daily practices and the organizational structure.

6.2.2.2. ITG implementations and best practices current status in for profit private schools.

This category comes across the ITG implementations and ITG best practices used in for profit private schools. This category includes the current practices used, the level and implementations of Business/IT alignment, and the used formal ITG frameworks in these schools.

The ITG domain “Business/IT strategic alignment” was considered due to the fact that is the most important domain of the five ITG domains that is very essential to ensure proper ITG implementations (Parker et.al, 2002; Wessels and Van Loggerenberg, 2006; ITGI, 2009; ISACA, 2009). Moreover, to ensure that full coverage of ITG practices in schools have been considered, a devoted question was available to investigate the use of any formal ITG frameworks to implement best practices in the schools participating in the case study. Some of the most obvious common ITG practices repeating in all case study schools will be discussed and analyzed here, the rest are listed per school in (Appendix D) in the previous section:

IT Expertise At Board Level:

This is a very critical practice that should be considered with significant importance. As most of the school principals are holders of educational and leadership qualifications and probably have gained experience of running schools through years of experience. However, ensuring that managers are IT literate is not easy to achieve as confirmed by (De Haes & Van Grembergen, 2006). Moreover the fact that having high qualified educators with leadership, business and IT backgrounds is even more difficult to find. Hence, some schools find IT to not be of importance at strategic level due to the fact that the management lacks the understanding of IT and IT business relations. This lack of understanding led to managers using their experience in creating value and profits via

other channels such as more effective teaching and learning, raising fees and so on, moreover, IT is managed on ad-hoc basis. However, managers demonstrating more expertise and literacy in IT show to conceive more power of IT in creating business value. This is due to the fact that these principals have combined their expertise in education, business, leadership with the power and potentials of IT to explore new competitive opportunities that they conceive where less IT experienced managers might not realize. Moreover, such managers, have interpreted their expertise in IT value creation understanding to set proper organizational structures that bring together the principals educational leaderships, business experiences, IT experiences into one management team where the gap of communication is paved and all work in alignment to reach the organizational overall strategy. This is clearly achieved by School "A" where the school has a devoted CIO that is part of the schools management team hence bring IT understanding with business experts and educational leadership experts to discuss the schools strategic needs in common language that allows IT and business to understand each other and work in alignment to reach the schools goals. Likewise, School "B" and "C" have a devoted ICT center and an IT strategic steering committee at board level. This was also done to ensure that IT understands the business needs and not only considers the technical, functional, and operational aspects of the school.

ITG and the Organizational Structure Of Schools:

In regards to the ITG best practices in terms of the organizational structure in schools. It is clear that some schools haven't yet reached this level. For instance both schools C and E, have IT departments led by an IT head of department, who is responsible basically for the coordination of the IT curriculum. In some cases, the IT head of department would be involved in suggesting or evaluating some solutions to the management team, conversely, the head is not part of the management team nor do they have any executive delegations. On the other hand, School "A" has a devoted CIO on executive committee that reports directly to the Principal. Nevertheless, School "B" has established a centralized ICT center to cater for the IT demands of all of its branches. This ICT center along with the external partners are responsible for considering IT decisions and best IT investments to management. On the other hand, School "D" has established a more advanced IT strategic

committee which is at executive management level and is responsible for determining business priorities in IT investments, IT projects, IT related risks and other strategic issues.

ITG on Management's Agenda.

Schools which perceive IT to be an enabler instead of a strategic partner do not find it necessary to discuss IT on board level, this is the case in School "E" where IT is only on the boards agenda when there is an urgency for that therefore, it is discussed case by case. Moreover, for both schools C and E, it is clear that IT will be discussed on board level in critical cases where IT issues might bring irresistible opportunities or cause the school to lose its reputation or stakeholder trust. Controversy, schools with high expectations of IT and believe in ITs value creation perceive it very necessary to have IT on their management's agendas which is the case in School "A", B and D.

Typical focused of board discussions regarding IT for these schools would include improving IT performance, discussing the role of IT in sustaining future business success, the contribution of IT to innovative practices, analyzing IT related risks, reducing costs and investing in new technology to increase profits.

Integrating ITG Tasks in Roles and Responsibilities.

This ITG practice is still not fully considered in most of the participating schools. Many of the schools investigated had good job descriptions and roles and responsibilities for business and IT staff. These roles and delegations were basically related to business roles for business staff and IT roles for IT staff on functional and operational levels. There was very little realization of ITG tasks and responsibilities for most of the schools. However, School "A" had many ITG related roles and responsibilities assigned to the CIO who was responsible for overall effectiveness of IT in the school on all levels starting with the operational to the strategic level. Likewise, both schools B and D also had similar practices for their ICT centre and IT strategic steering committee respectively. One striking fact that needs to be mentioned here, is that the roles and responsibilities related to ITG practices although showing in the delegations of staff in some schools; has not yet crystallized to demonstrate full understanding of ITG concepts in a formal manner.

Managing IT Budgets and Investments:

Managing IT budgets and investments is an ITG practice that has been considered by all principals except for School "E". This practice varies dramatically from one school to another. Where some schools show very basic control over IT budgets and investments, others show good control and management. Schools like School "C" and "E" do not have devoted IT budgets or investments, as these are just part of the schools services and facility budgets and cannot be isolated from other facilities. Moreover, IT investments do not gain any priority over other investments only in the case where they are perceived to be a critical solution to support a strategic decision. Alternatively, schools like School "B" relies on the ICT center and the external partners to ensure effective IT investments and then these suggested solutions will be discussed at board level hence having devoted meetings for IT. Likewise, School "D" and A have both the CIO and IT steering committee attendant in all board meetings, thus, allowing IT projects and investments to priorities well as a business partner. Schools A and D not only consider IT budgets for educational supporting tools but also for strategic investments that add value to the overall school effectiveness. The IT investments, costs and budgets can be tracked and are in isolation of other facilities costs. However, unfortunately these schools still do not have formal metrics to measure the returns of value on IT investments in place in spite of having different forms of measurements among them. A thorough discussion on IT/business metrics will be demonstrated below in category 6 of this section.

IT Quality Assurance and Audits.

All schools participating in the study have some form of IT quality assurance audits in place. Basically, they are internal self-auditing and evaluation tasks organized by the IT departments in these schools. The role of these audits is to ensure IT functions and operations are performing well and are meeting the school's expectations. In addition to these IT department audits, School "B" has other forms such as being inspected by the central ICT center and the external IT partners which ensure quality performance not only on operational and functional level but also on tactical and strategic level. Likewise, School "D" is evaluated for IT quality and performance on all levels from operational to strategic aspects by its IT steering committee. Similarly, School "A" is inspected for IT quality by its CIO in addition to a delegated quality assurance team that includes IT in its standards.

Reports on quality of IT in all levels are reported directly to the school Principal for discussion and evaluation.

It is important to mention here that most of the schools also are inspected for quality delivery and performance of IT by external bodies; such include ADEC, KHAD, ISO, CITA, AdvacED, Cambridge and others that are part of a fulfillment of requirements of accreditations and quality assurance. However, schools have not yet gone for formal frameworks and devoted IT quality audits such as ISO 38500, or others which are considered in their future improvement plans. This is probably due to the fact that ITM and ITG has not yet reached a maturity level that enables these schools to go for such quality assurance certifications with confidence.

Risk Management and Control.

This ITG practice occurs in all sample schools in different forms from very simple to more professional risk management and control. It is realized that top management have realized that IT opportunities has a payback of IT associated risks in some case. Moreover, there is a good awareness among management that IT risks need to be considered just like any other risks that might threat the business. Hence, some schools rely on their IT departments in defining, managing and dealing with IT risks without involving the management in these risks only if they become a critical threat to the overall school business or if it is a compensation to the school's reputation. On the other hand, schools like A, D, and B realize, monitor and control IT risks with concern by the delegated CIO, ICT center and IT steering committee and discuss these risks at management level.

IT Policies and Procedures.

Another aspect of ITG current implementations in school is having IT policies and procedures in place which is still not obvious in all schools. As some schools with wider use of IT have already reached a level of setting clear policies and procedures in place such as schools, A, D and B; others have very basic policies and procedures such as schools C and E that are limited to internet usage, computer usage and other functional aspects.

Business IT strategic Alignment.

Business alignment is considered the most important dimension of ITG as it ensures business and IT strategies and processes harmonize well in achieving the organizations

overall objectives(Henderson et.al, 1993; Parker et.al., 2002;Dehaes and Van Grembergen, 2008;ITGI, 2009) moreover “IT can both enable and drive business change”(Luftman & Rajkumark,2007) . Therefore, this has been delegated a question of its own on the case study interviews. By analyzing the findings of the case study interview data, it is observant that the level of IT/business alignment varies from “no alignment” to “highly aligned” as perceived by school principals and in accordance to their responses to related questions that reveal this level of alignment. The following table shows the occurrence of Business IT strategic alignment tasks occurring in each school which were analyzed from the table (21) where they are based on Luftman (2000) Alignment maturity criteria.

Table 21: Further Categorization of the 5 Case Studies -Business/IT alignment activities/tasks

Business/IT alignment activities/tasks	School “A”	School “B”	School “C”	School “D”	School “E”
IT strategy is part of the schools business strategy and supports it.	*			*	
IT is a strategic partner in school	*	*		*	
IT supports the business needs	*	*	*	*	
IT is highly on management’s agenda	*	*		*	
There are well established links/communication between business and IT.	*	*		*	
Business and IT understand each other.	*	*		*	
Well skilled human resources	*				
Well management of IT investments	*	*		*	
Business is involved in IT Strategic planning	*			*	
IT prioritizes well	*			*	
Availability of Steering committees/CIO or other divisions with management roles	*	*		*	
Standards articulation					
IT supports or creates innovation in the school	*				*
IT business metrics in place					
Formal assessments and reviews.		*		*	
Managing emergent technologies	*	*	*	*	
IT reports directly to senior management	*	*		*	

From the table above it is obvious that IT and business in schools A and D are highly aligned compared to School "B" which is considered moderate. Conversely, schools C and E have very low alignment levels due to the absence of many alignment tasks in both schools. This

might be due to the lack of awareness of management in regards to the value of IT and ITG, in addition to the fact that these schools may have not reached a level of IT maturity to start considering IT and business alignment seriously. Another interesting finding that is found is that the most significant Business/IT alignment activities considered more frequently than others are the “Managing emergent technologies” and “IT supports the business needs” which is denoted by four out of 5 schools. These alignment tasks might have been considered due to their importance in bringing IT into business, that is probably due to the fact that the management nowadays are more concerned with the management of new technologies to ensure competitive advantage and new ways of differentiation regardless of the level of ITG in school. Moreover, the task of achieving alignment between IT and business via IT supporting business needs, is also indicated an important alignment task by four out of five schools. This could be due to the vitality of IT to these schools due to the high competition in the private school industry where all schools are working under the same quality standards and have to comply with them. Hence lowering the chances of differentiation via pure academic offerings such as high quality teachers, certain curriculum settings such as the American or British curriculum, state-of the art facilities as few to mention. Consequently, the schools have started to realize the importance of considering IT’s support to the business needs as another source of differentiation and competition, hence moving IT from a functional and operational level to a strategic level that is discussed by boards.

Other ITG practices.

Other practices also are demonstrated by some of the schools but do not show in all, hence they will be mentioned here briefly. The communication and articulation of ITG practices to all staff in schools is not well considered in all schools. The communication of roles and delegations and other ITG concepts is basically limited to the management team and to heads of departments. In most of the cases, other staff do not have a minimal idea of what ITG is or on how it can add value to the school. Basically IT vision, related aspects, performance, roles, training is articulated to staff (School "A", "B"), as for School "D", some ITG aspects might be articulated such as innovative ideas, new technology implementations and so forth. Whereas, School "E" considers IT aspects to be the business of the IT department only.

Another very rare occurring ITG practice is training IT people about business and/or training business people about IT. This was considered as a current practice in only one school which is School "A" this was further explored by re-contacting the Principal to ask for clarification on this practice. The Principal explained that the IT management team attends training, conferences, and workshops on business related topics in addition to the school's encouragement and support for its management staff in gaining a postgraduate degree in a business/IT field. Moreover, all business and management members are requested to be certified holders of a core IT literacy competence certificate that is usually offered in school by undergoing intensive training and examinations. This practice is found useful by the Principal to reduce the gap between IT and business and to help them understand each other. However, schools B and D do have training but not business/IT training, as a matter of fact, the training provided is considered staff professional development in terms of the use of computers to enhance the teaching and learning process.

6.2.2.3. The current used ITG frameworks in the sample for profit private schools:

Regarding the use of ITG frameworks in the sample population of the case study, it is found that no formal ITG frameworks are totally in use however, some schools like School "B" and "D" have informally used ITIL to ensure quality services after customizing it to meet their needs. However, it was used as a guide to enhancing services but not as a formal framework. Nevertheless, in addition to having internal audits, all schools have some informal standards and audits in place, such audits and standards include meeting the requirements of national and international quality assurance or educational authorities such as ADEC, ISO, KHDA, MOE as part of the fulfillment of overall school quality assurance or self evaluation criteria's.

Regarding the future plans, School "A" is working on implementing ITIL or ISO 38500, whereas schools B and D , are intending to go for COBIT ITG framework.

To summarize the finding of the second category regarding the current implementations of ITG in the sample of for profit private schools; it is clear that there are a number of good ITG practices in place that agree with many of the practices available in other industries. This implies that ITG practices can be implemented regardless of the business industry or

size of the school which agrees with (Weill & Ross 2004). Moreover, it is necessary to mention that regardless of the fact that most of the schools were still new to the term ITG, and had no previous knowledge regarding this concept, a number of good ITG practices were in place. This is due to the fact that these schools have overcome the initiation phase of building the IT infrastructure, in addition to having very high investments in technology which intuitively led to finding best ways to gain benefits out of these massive investments to create new methods of gaining competitive advantage. Hence, learning from the best practices that have proven to work and therefore considering them part of the school's management practices and overall school culture, with time these were interleaved into the organizational day-to-day chores. Some practices existed in all schools regardless of the level of effectiveness whereas others were found to be existent in some schools with higher IT value perceptions such as IT/Business alignment which is affected significantly by the management's awareness and realization of the vitality and value IT and ITG adds to the business. Moreover, another reason for these differences in ITG implementations can be referred to the fact that some schools have not yet reached a maturity level in terms of academic performance. Hence, more effort is put on building the structures, enhancing teaching and learning, training staff and other academic aspects to ensure sustaining an acceptable academic performance level, once this is achieved, schools start seeking new methods of differentiation and value creation. Some would go for increasing school fees as a return for providing outstanding education, whereas, others will go for other methods of value creation such as cost reduction via good process management such as considering effective ITG. Nevertheless, it is obvious that the curve of experience plays a significant role in the level of ITG practices implemented in for profit private schools. The curve of experience has helped to overcome the initiating phase of IT governance implementations, where structures are in place and processes started to crystallize hence moving into implementing more ITG practices that create more value to the school business and ensure reaching a competitive edge.

One interesting fact that is shown here is that schools that have started their ITG practices years ago have shown to have more IT business alignment practices in place. This agrees with the finding of De Haes and Van Grmbergen, 2006 where they found in their research that organizations that have implemented ITG for years have shown to have higher business/IT alignment maturity levels than others that have started later. This could

once again be due to the fact that these schools that started years ago have overcome the structure-building phase and IT infrastructure is stable enough. In addition to having the school already gone through a variety of differentiation methods some of which worked and others that haven't, hence leading the management to understand the need of involving IT in business strategy and vice versa. This realization and understanding led to implementing more alignment processes and activities that are not yet realized by other schools that are still in the initiation phase of building the IT infrastructures.

In regards to the use of formal ITG frameworks, it is clear from the information provided in the case study that the private business sector has not yet reached the ITG maturity level that allows it to go for formal ITG practices, as some processes and awareness needs to be considered. Moreover, ITG concept is still not part of the schools organizational structure hence, schools still have a lot to do to gain full awareness of ITG value. Once this is achieved and all processes are in place, schools will then realize the importance of considering formal ITG frameworks to increase overall school effectiveness.

6.2.2.4. The factors affecting ITG effectiveness :

This category includes Enablers, inhibitors to effective ITG implementations. In this section a thorough discussion and analyses of each of these three critical factors will be considered in an attempt to come up with a conclusion on the common factors that might be more probable to occur in the school business context.

Drivers for effective implementation of ITG in for-profit private schools.

Drivers to effective implementation of ITG in private schools differ from one school to another, where schools have different reasons to consider implementing ITG. The drivers depend to a large extent on the school's vision, and business strategy, where some schools have drivers that were found to be more business oriented while others where more service and quality oriented as per the responses of school principals during the case study interviews. The drivers have been further analyzed using table((Appendix D, Category 3) to show the common drivers from literature and the schools perception to these drivers which are displayed in the table below(22):

Table 22: Case Studies Analysis: Drivers for effective implementation of ITG in for-profit private schools.

Drivers for effective implementation of ITG in for-profit private schools.	School "A"	School "B"	School "C"	School "D"	School "E"
Complying with national and international standards and regulations	*	*	*	*	*
Ensuring better alignment of business and IT	*	*			
Ensuring better control and management of resources and assets.	*		*		
Reducing costs	*	*		*	
Managing and controlling risks	*		*	*	
Improving overall school effectiveness and performance	*	*		*	*
Creating business value through IT(benefits vs. costs)		*		*	
Bringing good reputation and trust of stakeholders			*	*	*
Higher returns on Investment			*		
Achieving differentiation and attaining competitive advantage to the school.	*	*		*	*

The table above shows the drivers of schools' A to E, it is apparent that some drivers are considered more important than others to most of the schools as they occur as drivers for ITG in more than one school. By carefully interpreting the findings, the information shows that these factors are basically relate to a unique business value sought by the for profit private educational sector, which is making profits through quality educational services via the use of proper technology structures, processes and mechanisms. Thus, it is found that the focus of principals was not concentrated as a consensus on cost reduction, controlling risks, nor directly increasing ROI. As a matter of fact, they were on ensuring effective compliance with national and international standards, improving overall school effectiveness and performance, and achieving differentiation and attaining competitive advantage via the proper implementation of ITG which are the forcing drivers of ITG for these schools. One reason to this might be that school principals do not really consider risks, costs investments and other aspects alone, as they usually rely on delegated individuals or on management meetings in discussing and considering such issues, hence it doesn't intuitively strike to their minds to consider these factors major drivers for ITG. Likewise, they care about creating business value via points of strength related to their educational leadership background and long years of experience, hence it is more likely that they consider selecting factors that would create differentiation, competitive advantage and hence lead to overall school effectiveness to be the significant reasons for implementing effective ITG. Moreover, complying with national and international

regulations and standards, is the most important driver for principals to deem ITG as all five principals indicated, where it is part of ensuring quality and compliance ; consequently, allowing schools to stay in business hence surviving and thriving.

By compiling the responses of the participants, it is noticeable, that there is still a lack of awareness among senior school managers regarding the full realization of the value IT can bring to business. This is reflective on having factors such as cost reduction, managing risks not vital as a driver to most of the schools. However, schools with more years of experience, and IT implementations and ITG maturity, are more aware of value returned by IT via cost reduction and risk management. In addition to realizing the significance of such factors in increasing profits therefore, these schools consider them to be significant drivers to effective ITG.

Enablers to effective ITG practices.

These include the critical success factors that if available in schools; will lead to effective ITG implementations. By analyzing the responses of the participating sample population, to this question, it is found that there are some common enablers which all schools consider to be of utmost importance in enabling ITG effectiveness, while other factors were considered to be important from the point of view of different Principals. Some of the most important enablers mentioned by managers were:

Management's Awareness, Support and Commitment to IT:

All school principals ensured the importance of Managements support, commitment, and understanding of IT value as a strong enabler to successful ITG implementations. This is due to the fact that management's realization of the value of IT allows the whole school to value IT and to inherit a sense of importance to the value IT creates to all the school therefore creating a culture that understands and values IT and works towards implementing effective ITG to gain overall school effectiveness. Moreover, the principal of School "E", who admitted that a lot of IT value was lost due to the lack of awareness of management on IT related issues which agrees with literature as Weill & Ross (2004b), Letsoalo et. al. (2006) have considered top management commitment and support the first enabler to effective ITG. In another study conducted by Teo and Ang(1999) as cited by (Lee et.al, 2008), where they analyzed 168 firms in different sectors, they found that one of the

top ranking critical success factors in IT/Business alignment was the management's commitment to the strategic use and importance of IT, in addition to managers IT literacy level.

Adequate Stakeholder Involvement and Support

This is considered another enabler and if absent an inhibitor to effective ITG as denoted in literature. Many CIOs see it very critical, due to the fact that many business employees conceive IT to be critical. However, they do not bare any effort in paying attention to any IT issues other than what they are forced to do to accomplish their daily tasks, hence not being involved in planning innovation, auditing, monitoring or other practices (PwC & ITGI,2007). Thus, ensuring that stakeholders have a strong buy-in and support to IT ensures that ITG practices will be formulated and supported by all stakeholders, hence ensuring effective implementations that work for the good of the whole organization.

As seen by some school principals such as Schools' "A" and "B", stakeholder involvement is considered an enabler to good ITG in school. When questioned during the interview on why they think it is an enabler to ITG; the school Principal of school "A" mentioned that stakeholders involvement and awareness of IT and its importance has a dramatic effect on ensuring that effective ITG implementations are in place. This takes many forms such as providing constructive feedback, suggesting solutions, participating in innovation, evaluating existing solutions and trends, participating in surveys and questionnaires.

The existence of qualified human resources in ITG:

This includes individuals or committees of specialized personnel's that understand both IT and business. This unique permutation of IT and business background is necessary to ensure IT and business understands each other. Due to the fact that this is a very rare existing combination, schools have overcome this problem by hiring a devoted CIO with a solid IT background to be part of the management team which is the case in School "A". Moreover School "A" also provided intensive professional development in business to the CIO and IT training to managers and business staff, as a form of bridging the gap between educational leadership, IT and business.

Whereas schools "B" and "D" took a different direction, where they have both established a more specialized IT center and IT steering committee with managerial

authorities. These groups also report directly to top management and once again meet with business people to take critical decisions regarding IT decisions and investments.

One interesting finding here is that although School "E" doesn't have any experienced IT/Business staff member nor does it even have an IT expert at the level of management; the Principal perceives having a well-trained high-qualified staff member in both business/IT to be an essential enabler to effective ITG in school.

This enabler is considered very important as it helps in bridging the communication gap between business, IT and leadership. As IT and business usually find it difficult to understand each other, hence, experienced people with expertise in both IT and business is a very important enabler to good ITG.

Economy of experience in IT

This enabler to effective ITG was considered by the Principal of School "B", which is a school in a chain of other schools. The years of experience in IT and ITG implementations can lead to effective ITG. As for the Principal's point of view, schools that have a long run in IT implementations have built a knowledge base for themselves, as they have learnt from others mistakes and re-used lessons learned, hence, making it easier to preserve what works best for the school in terms of IT management and IT governance.

This is rational, as the school has went over the initiation phase of building the IT structures and foundation, where IT is a cost center that consumes resources. Procedures and processes are still formulating and might frequently need to change due to the changing demands. Moreover, the management at the early stages still find other ways of achieving competitive advantage more effective such as enhancing quality of teaching and learning, providing unique international curriculum or by becoming an examination center. IT at that phase is just an enabler, once matured and settled, schools start investing in IT by bringing in new emergent technology into school. This large amount of technology needs to be monitored, controlled, and directed to attain the expected goals from these high investments. Hence, it becomes a concern of management which starts getting involved in IT strategy, and starts to realize the value or the threat of IT to the school business strategy. Hence, by demand and learning, the school puts in place the correct structures, processes and procedures that best work which then become part of the day-to-day practices.

This may also be applicable for School "D" which also is a part of a school chain where all experiences and lessons learned in the sister schools can be transferred to this school, hence, avoiding reverting the wheel by applying best practices that help to avoid risks and increase IT value.

As for School "A", this enabler may also be true, due to the fact that school has been in business for more than 19 years hence this might also have affected the level and implementation of ITG the school has reached. This preliminary finding should be considered in further research to prove its validity.

Use of Specialized External IT Partners.

Due to the fact that school business still lack the existence of experienced IT/Business specialists, and also the fact the most school principals are experienced in educational leadership hence lacking IT literacy which is not easy to achieve. Therefore, some senior managers might overcome these dilemmas by hiring or partnering with external consultants or advisors to direct the management to the best IT investments manage risks and ensure essential ITG implementations are in place. This practice is considered an enabler to effective ITG implementations by School "B" which relies on IT decisions and implementations on their ICT center along with their external IT solution partners.

Moreover, this is also applied in both schools D, and E where School "D" also has an IT steering committee that is considered external to the school itself in terms of providing support to all school branches. However, for School "E" the case is different, as the top management gets advice from MOE IT support divisions or any local IT solution provider.

Well established links and communication between business and IT.

The establishment of effective links between business and IT where business and IT understand each other, is considered an important enabler, not only for the schools participating in the study but also by many researchers as seen in literature (Teo & Ang, 1999; Gottschalk, 1999; Luftman et.al. 2000, Lee et.al, 2008). This enabler that ensures good communication between IT and business is considered the fifth most important CSF to securing alignment as denoted by Teo & Ang (1999). According to the information gathered during the interviews, the effective links between IT and business include close

relationship between IT and business, where IT and business people can understand each other to reach the schools overall strategic goals. Moreover, it is also vital to ensure that IT strategy is in line with the business strategy and doesn't contradict it due to not understanding the business needs.

Schools A, B and D consider this factor as an important enabler to effective ITG as they perceive the common language and understanding between IT and business to be very important in implementing ITG in schools. This may be due to the fact that for profit private school are basically established to gain profits as a business via providing quality education, hence management of education, business and IT aspects need to come together to find best methods of communicating to ensure they are all working in one direction to achieve the school's academic and business goals. Hence, lacking one of the communication channels may create a risk of losing business opportunities or educational quality or even latest IT trends that might add value to the school and lead to competitive advantage over other schools in the industry.

Having a devoted IT strategic steering committee with executive authorities.

As for perceiving having a devoted IT steering committee with executive authorities to be an enabler, this agrees with literature that ensures this is an important enabler (ITGI, 2003; Monnoyer & Willmott, 2005). This practice ensures that the top management is involved in a systematic way in IT governance issues (Dehaes & Van Gambergen, 2006). During the interview, only School "D" came across this enabler, where other schools when questioned did not consider it an important enabler due to the fact that they have other alternative structures in place. Such alternative structures include having a CIO or even having an ICT center which has some executive delegations as in the case of schools A and B respectively. By analyzing the responses regarding the need for an IT strategic steering committee, and by only having it mentioned by one school, in addition to having School "B" with a smaller formulation of this committee but with a different name while having this committee replaced with an individual CIO leading an IT department in School "A". One might conclude that the reason for having an IT committee with executive authorities as part of the management team in both school's "B" and "D" would probably be due to the fact that these schools have many branches. Hence, they need a centralized IT committee that coordinates and controls all aspects between the IT departments in all schools and then,

reports to the board of the school. This is reasonable, as it would not be sensible to have a CIO for each branch who needs to represent the school in management meetings which would cause conflicts, inconsistency, lack of control of budgeting, and project management. Nevertheless, in the case of School "A", the school has no branches; hence, the CIO is fully taking control of all IT aspects on campus which is sufficient enough to meet the demands of a single campus school regardless of the amount of technology used.

Having Clear ITG Principles and Processes.

While having many ITG practices in place, it is very important to ensure processes and procedures are in place to improve business efficiency and effectiveness (Weill and Ross 2004b; Letsoalo et.al., 2006). According to the main survey, four out of the five schools perceive ITG to increase business efficiency and effectiveness; this is basically achieved via proper processes and ITG principles settings in the organization. In different areas of ITG it is critical to ensure processes and procedures are in place to manage IT resources, investments, risks and other aspects in efficient forms (Luftman, 1999). School "E" might have perceived this as a significant enabler as a result of not having such processes in place, where the Principal claims that if such procedures were clearly identified and processes were in place, the value creation of IT would have been considered in school. The other reason that this might be significant to School "E" is that, School "E" is still in the initiation phase where the structures and infrastructures are still formulating. Hence, processes have not crystallized and taken their final shapes; consequently, the school needs to set clear ITG processes to start realizing the potential of ITG in bringing value to the school. The ITG processes in School "E" are in ad-hoc basis and are very simple; this reflects the Principal's awareness of the value of IT. By considering this enabler in the other schools, it is obvious that it has not been mentioned as an enabler. This is probably because the well performing schools have set a number of procedures in place that have been considered part of the school's culture and taken for granted. Therefore, these schools might have gone deeper in considering enablers that are far from factors that they conceive to be fundamental steps in building effective IT management and governance which has formulated to some extent, and is being adjusted regularly to meet new demands.

Inhibitors Impeding The Effective Implementation Of ITG In For-Profit Private Schools.

Thorough discussions and literature was covered in the different inhibitors prompted by experts in the fields as covered in section (2.2.4 ITG Enablers and Inhibitors) of this report. Inhibitors impede or hinder businesses from implementing good ITG practices and serve as an obstacle in being able to attain the value created by IT and effective ITG. Managers should consider these inhibitors and try to turn them into enablers. According to the responses of the participants in the interviews of the sample cases study, many of them indicated that there was more than one inhibitor impeding the implementation of ITG in their schools. By analyzing table (21) which summarizes the schools' responses regarding the barriers, attempting to find common inhibitors between the different schools, it is obvious that some inhibitors are repeated between most of the sample, while others are uniquely defined by some schools according to certain limitations they encounter. The following table(23) displays the occurrence of different inhibitors as denoted by the school principals of the participating schools.

Table 23: Case Studies Analysis: Inhibitors impeding the effective implementation of ITG in for-profit private schools.

Inhibitors impeding the effective implementation of ITG in for-profit private schools.	School "A"	School "B"	School "C"	School "D"	School "E"
Budget limitations and lack of financial aid regarding IT projects and investments.	*	*			
Lack of local existing IT solutions, external consultations or advices regarding ITG	*		*		
High pay of IT/Business specialists and IT solution developers to be on site	*			*	
Lack of understanding between Business IT relationships	*		*		*
Lack of availability of precise formal forms of IT value measurements		*		*	
Emergence of unplanned IT projects or initiatives that consume resources and affect plans.		*			
Resistance to accept accountability and to change regarding IT aspects in school.		*	*		
Insufficient expertise of management, IT and business staff in regards to ITG concepts.			*	*	*
Improper cultural, infrastructure and settings of school towards ITG. (this includes processes, procedures, roles and responsibilities)			*		*
IT does not prioritize well			*		

Inhibitors impeding the effective implementation of ITG in for-profit private schools.	School "A"	School "B"	School "C"	School "D"	School "E"
Lack of professional ITG training for managers and executives.				*	*
Lack of stakeholder involvement in ITG aspects					*

By closely examining the indicated inhibitors, it is clear that most of them are cultural and managerial aspects. This agrees with literature where Luftman et. al (1999) and Lee et.al (2008) concluded that most of the inhibitors of business/IT alignment are social and managerial issues rather than being technical or functional.

Another interesting finding is that the principals did not mention the support and commitment of the senior management as an inhibitor, which also was rational, as the Principal would demonstrate commitment and support if they have had the proper knowledge and realization of ITG aspects. Due to the absence of this knowledge, many of the inhibitors were based on considerations regarding the insufficient expertise of management, IT and business staff in regards to ITG concepts, the lack of professional ITG training for managers and executives, lack of understanding between Business-IT relationships. Hence ensuring that knowledge building of ITG in an educational based business is the first priority of principals with an educational leadership background and slight IT and business experience, then support and commitment would intuitively come after full realization and understanding of ITG thus, explaining why these inhibitors were the most repeated ones among the five schools.

As for the inhibitor "Lack of local existing IT solutions, external consultations, or advices regarding ITG", a thorough discussion was conducted with the school principals indicting this factor, to perceive their point of view. The principals mentioned that one of the obstacles they face is the lack of existing IT solutions, consultations and advisory locally, especially within smaller cities, where most schools outsource solutions or are not satisfied with most of the solutions that exist locally. Moreover, they have also indicated that they have not come across any consultation company that might provide business solutions to schools other than school information systems, web designing, and other similar services.

In considering the interpretation of the principals to this inhibitor, other factors might exist to which might have had impact on their evaluation of the absence of such IT solutions locally. This could be once again a result of lack of communication between business, education, and IT solution providers thus, resulting in business, education, and IT not understanding each other. Moreover, the nature of school business is different from other business industries, where private schools all have certain unique settings that need to be analyzed and studied properly by IT solution providers, through good system analysis. This is to overcome any gaps in understanding the educational business needs of the school that probably might not communicated properly via the IT, business or educational experts in the school, hence resulting in systems or solutions that are not fully satisfactory or even not meeting the schools demands and needs. Another reason might be the absents of business/IT professionals in school or even a CIO with a business background who can understand the schools needs and communicate them effectively to the solution provider. It is obvious that some schools have reached a realization of the need of such IT/Business qualified personals as expressed by some schools to be an inhibitor in the case of the lack of available expertise in business, IT and management among managers. Moreover, from the responses it seems that some schools have realized the importance of this unique combination to be on site. However they were hindered with the high pay of having such IT/business experts on site; therefore, going for more feasible solutions such as having a devoted CIO while ensuring they undergo intensive professional development in business to bridge such gaps.

6.2.2.5. ITG maturity level and ITG performance rates in each school.

Using this scale School A and D perceived to rate their maturity level to be at level 4, whereas school B allocated ITG maturity to be at level 3. However, C and E were at level 1. The average ITG maturity level for this sample was 2.6 where the average maturity of the overall sample population consisting of all the 50 schools which was 2.36.

The perception of principals regarding the level of ITG varies in the sample population where the lowest was 1 and the highest level was 4. This is sensible, as all schools have some ITG practices in place and even if not aware of the terminology of ITG specifically, hence none started at zero. Moreover, all schools have recently moved to massive reliance on ITG to create value, hence there is still a lot to do, in addition to the

lack of awareness of the full potentials of ITG due to the lack of business/IT expertise in schools resulting in not reaching levels higher than 4.

Using Weill & Ross (2006) ITG performance matrix, it is found that the performance rate for schools A to E respectively were 80%, 75.7%, 44.3%, 83% and 40%. Comparing this with the benchmarking value indicated by Weill and Ross 2006 in their study which was 69% we find some schools are above this threshold value and some below it which shows a natural curve. Moreover, the total average for these schools ITG performance is 64.6% which is somehow lower than the benchmarking value.

An interesting finding here is that the ITG maturity levels perceived by principals agrees with the ITG performance level calculated for each school according to their responses to the questions using Weill and Ross 2006 IT performance measurement matrix. As school perceiving high ITG maturity levels (A , D, level 4) also had a high ITG performance level (A 80%, D 83%) which proofs the validity of Weill and Ross's ITG performance metric as a self assessment tool to be used by organizations to measure their level of ITG maturity, the same applies for the other schools. Moreover, it also indicates that school principals know exactly where they are situated in terms of ITG maturity in their schools.

The schools with higher maturity seem to have more awareness of ITG practices than the ones with lower maturity levels, moreover, more processes and practices are in place as seen in category 2 of this section. This could be explained as having more management realization of the value IT can bring to the business, hence having management more involved into IT aspects and linking IT strategy with the business strategy. On the other hand, the schools with lower ITG performance and ITG maturity levels also show to have less management awareness and realization of the value of IT, in addition to having less ITG practices in place.

Considering the data in hand, the factors affecting schools in achieving high ITG maturity levels can actually be considered enablers to good ITG, furthermore, the weaknesses causing low level maturity can be considered inhibitors to good ITG as discussed in category 3 of this section. However, after discussing the maturity level with principals and their ITG performance levels, some seemed to give more in depth factors that lead to this level of maturity and performance. This could be due to the fact that they frankly tried to explain the real reasons behind this level achieved.

The factors that were considered positive in achieving good maturity levels and the missing factors that were considered a reason for lower levels of maturity were summarized in the following into two categories containing strengths of schools and weakness points causing high or low levels of ITG maturity respectively table (24).

Table 24: Case Studies Analysis- Perceived reasons for current ITG maturity levels

Perceived reasons for current ITG maturity levels	School "A"	School "B"	School "C"	School "D"	School "E"
Strengths causing good/high levels of ITG maturity					
Support and commitment of senior management to IT and ITG	*	*			
Believe and realization of IT strategic value	*			*	
IT is a business partner not just an enabler or a supporting tool	*				
Good alignment of business and IT	*			*	
Having an IT specialist or committee as part of the management team	*	*			
Well defined IT and ITG procedures and processes		*		*	
Well articulation and communication via workshops and orientations of the vital role of IT		*		*	
Knowing who the customers are and what are their needs				*	
Weaknesses causing low level maturity levels in for profit private schools.					
ITG is not an issue of concern to the school. As the school prefers to go for other forms of differentiation.			*		*
Lack of communication between business and IT			*		
Lack of management's realization of the contributions of IT to the business.			*		*
The school is still in the initial phase of setting the foundations and structures of IT.			*		
Lack of expertise of ITG among management, IT and business staff			*		*
Business and IT don't understand the needs of each other			*		
No clear definition of roles and responsibilities regarding IT and ITG			*		
Not having an IT expert on the management team			*		
School prefers other forms of different					
School structure perceives IT to be functional or operational not strategic.					*
No formal ITG frameworks in place	*	*	*	*	*
No high level ITG training for managers	*	*		*	*

By considering the data in the table above, it is obvious that some factors have repeated as an enabler to some schools and disabler to others due to its absents. Such factors are: "Believe and realization of IT strategic value", "Having an IT specialist or committee as part

of the management team”, “Well defined IT and ITG procedures and processes” . The occurrence of these factors in both being a reason for attaining a high level of ITG and for attaining a low level due to their absence reflects the importance of ITG literacy and awareness. It is clear that while many managers realize the importance of information and IT infrastructures and systems, they remain unaware of the importance of decision-making tasks related to ITG which has also been promoted by many researchers for managers in many other industries (Sheifer & Vishny, 1997; Van Gembergen et al., 2004; Posthumusa & Solms, 2005, Lee et. al., 2008). Similarly, schools which have realized the strategic value of IT have put in place good practices involving having some structures in the school organization such as to have a devoted IT specialist or committee that is part of the management team. Conversely, in the schools with lower maturity the absence of such settings might be a reason for lower ITG maturity levels. This factor was also promoted in literature by many researchers as an important structure that leads to good ITG in organizations (ITGI,2003; Luftman & Brier, 1999; Weill&Ross, 2004, Nolan&McFarlan,2005, De Haes& Van Grembergen, 2006, Lee et. al. 2008). Another factor that was considered repetitive among school principals as both an enabler and disabler is having well defined ITG procedures and processes in place. This includes the level of defined and managed IT processes, procedures and policies along with well defined performance indicators to measure them which is also considered an important factor in literature as denoted by many researchers(Gottschalk, 1999; Luftman,1999; Luftman et.al., 1999; Guldentops et. al. 2001; Weill & Ross, 2004a; Weill & Ross 2004b; Gerrard,2006 , Lee et. al., 2008) . By considering this factor in participating schools, higher matured schools have more procedures in place due the reaction to emergent technology issues on the long go which required actions to be taken, policies to be set and processes to formulate by considering best practices that best worked for the school while discarding ones that were less appropriate. Likewise, for schools with lower performance, as discussed earlier in this report, are still in the initial stages of setting IT structures and infrastructures in their schools. Hence not reaching a maturity level that enables them to realize the need to set policies, processes and procedures for managing and governing IT, once settled, intuitively the need for such practices will be recalled instead of being done on ad-hoc basis.

The data also shows that even for the schools that have shown a high level of maturity, the principals still believe that the business could have done better if formal frameworks were used or if there was professional ITG training for principals.

6.2.2.6. *The effect of ITG on creating competitive advantage and creating value (Perceived value created by IT and Effective ITG).*

The final category in the study is to analyze and confer the perceived value created by implementing effective ITG in for-profit private schools. By considering the data extracted from the semi structured interviews of the case studies, the main survey responses and conclusions from principals' discussions and illustrations during further discussions at the time of the interviews, a summary of the perceived value created by IT and effective ITG can be summarized in the following table(25):

Table 25: Case Studies Analysis- Perceived value created by IT and Effective ITG

Perceived value created by IT and Effective ITG	School "A"	School "B"	School "C"	School "D"	School "E"
Better communication with stakeholders and wider reach.	*	*			
Attaining stakeholder satisfaction, trust and support	*	*	*	*	
Gaining shareholder trust, contentment and support.	*				
Reducing costs	*	*			
Managing and controlling risks.	*			*	
Reduced staff turnover and increased retention rates	*	*		*	*
Increasing student enrollment rates and retentions.	*	*	*	*	*
Increasing ROI, profits	*	*		*	*
Good school reputation	*	*	*	*	
Reduced errors, system downtime, accessibility problems, and hence reduced complain rates.	*	*		*	
Better Knowledge management and knowledge sharing in the school.	*			*	
Better compliance with national and international educational authorities	*		*	*	*
Allowing for more innovation and creativity.	*			*	
Allowing for new ways of differentiation and competence.	*	*		*	*
ITG is effective in asset utilization.			*		
Allows for higher quality services	*	*		*	*

On the topic of the extent to which senior managers agree or disagree that IT investments have created value for the school, three out of the five schools (60%) revealed

that they strongly agree, however, the other two schools (40%) agreed that IT does create value. None of the participating schools showed their disagreement to any extent that IT investments have not created value for the schools in one way or another. Barriers to perceiving this created value impeded full awareness of this created value (Appendix D, category 3).

The extent to which IT performance in the schools meets the expectations of the management varies. Schools A and D find IT performance to highly perform within the management's expectations, however School "B" perceives it to perform within expectations, nevertheless, both schools C and E find IT performance to slightly perform within the schools expectations. The responses clearly ensure that all schools perceive some value from IT regardless of the level of perception. Moreover, IT is meeting the expectations of different schools according to the context of IT and to the level of support provided by the management to IT.

Table (Appendix D, Category 5), depicts the value created through IT and ITG as revealed by school principals, after having categorized the responses, some interesting patterns are apparent. For instance, it is comprehensible that all schools have some value created from IT and effective ITG; however, some show more understanding of value creation than others. Another striking fact is that most of the value indicated is value that meets the demands of the educational context business industry. For instance most of the schools do not directly realize the value of IT on their incomes and profits, however, they do understand the value of IT in reducing turnover rates, increasing enrollment and retention rates which indirectly affects profits and ROI. Another finding is that; although some schools have reached a high maturity level compared to the other schools, in addition to having a good number of ITG practices in place; there are some important IT returned values that have not yet been considered of value to schools. Such returned benefits are the role of effective ITG in reducing costs, managing risks, effectively communicating with stakeholders, and better knowledge management. This could be due to the fact that these benefits need more understanding and implementations of ITG, and cannot be realized with the current level of awareness of ITG within the private school business sector, in addition to the absents or the lack of formal IT/Business metrics to measure the returned value of IT. Furthermore, these benefits can only be realized and

attained in a long term, and in most cases IT is considered in its early stages in most schools.

In the current settings of the schools and as seen from the sample population, no professional value measurement metrics are yet in place. Hence making it very difficult to isolate profits and expenses of IT from other school services and facilities, likewise, the other least realized IT returned values, are mostly intellectual and intangible and hard to measure, hence not intuitively realized by management.

Conversely, some IT created benefits were perceived by 80% of the schools which were closely related to the school business industry rather than being general business benefits. Examples of such created value are: Attaining stakeholder satisfaction, trust and support; increasing student enrollment rates and retentions; reduced staff turnover and increased retention rates; IT allows for higher quality services; increasing ROI, profits; good school reputation; better compliance with national and international educational authorities; and allowing for new ways of differentiation and competence.

To further study the relation between effective ITG implementations and the created business value in schools, a comparison between the schools' ITG maturity levels, perceived value creation of IT, and the annual income of the school was considered. A significant relation between the three variables shows that where ITG maturity is high, profits and the extent that IT investments create value for the school are also high and vice versa. Although the results clearly show that there is a relationship between profits, the value returned and ITG maturity levels(Figure (39)), this finding cannot be generalized, and needs to be further researched to prove the validity of this observation, as other factors might be affecting the school incomes other than IT and effective ITG which is hard to measure.

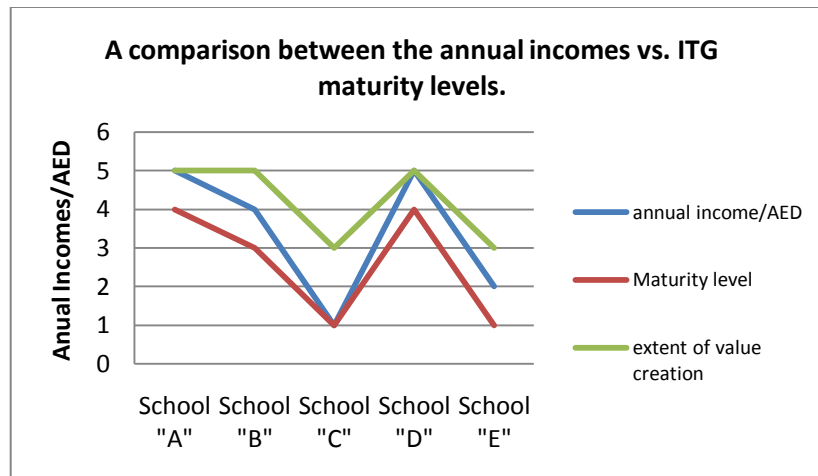


Figure 39: Case Studies Analysis: A comparison between the annual incomes vs. ITG maturity levels.

Similarly, when considering the same factors in the main survey for the overall sample population of the schools a correlation between these factors is apparent. It is found that there is a statistically positive relationship between the ITG maturity level of the school and the annual income ($r=0.544$, $p<0.01$), and a statistically significant but stronger relationship between the ITG maturity level and the extent to which IT investments bring in value to schools ($r=0.598$, $p<0.01$). Hence, it is clear that IT created value depends significantly on the ITG maturity level. It is important to mention here that the school annual incomes can be affected by other factors other than the ITG, hence they might have affected the relationship, and hence this finding cannot be generalized. Therefore, further research is recommend on highlighting the other factors affecting school income in addition to ITG to isolate they actual returned value of good ITG considerations in school.

Chapter 7: Overall Results Analysis and Conclusion

This chapter includes the overall result analysis including the findings from the pilot interviews, the main survey and the case studies using both quantitative and qualitative analysis methods. It then moves into the conclusion section which is followed with the research limitations and suggestions for future research.

7.1 General Results and Conclusion:

The main objectives of this research paper were to:

- To investigate the extent of ITG realization, implementation, and value perception in the for-profit private educational business sector in the UAE.
- To evaluate current ITG practices implemented in for-profit private school sector and the ITG maturity levels.
- To define the factors that might influence the level of ITG in schools including the enablers and the main barriers impeding effective implementation of ITG.
- To identify the perceived IT value created in for profit private schools as a result of ITG implementations.

Each of the research objectives has been thoroughly investigated and explored through extensive literature, pilot interviews with five educational experts, a main benchmarking survey to 50 schools around the UAE, and finally a thorough case study of five schools. The use of multi research strategies was considered to gain more insight on the current ITG implementations in for-profit private schools and to investigate deeply the real factors the causes of ITG aspects in reaching current maturity levels.

In reference to the literature review (chapter 2), the pilot interviews with educational decision makers (chapter 3), the results and analysis of the main survey (sections 5.1, 5.2, 5.2.5), and the results and discussion of case studies (sections 6.1, 6.2); the general findings and results were used to formulate the general results of this research.

In this section, the main results will be formulated towards meeting the research main objectives. This is done by considering each objective and the main findings of the research.

Research Objective No. 1: To investigate the extent of ITG realization, implementation, and value perception in the for-profit private educational sector in the UAE.

The aim of this objective was to investigate the management's realization and awareness regarding the vitality of IT and ITG in creating business value to the organizations. This basically included:

- Overall importance of IT in supporting the schools vision and strategy.
- The extent to which IT is part of the overall school governance.
- Role of IT in supporting innovation, school efficiency and effectiveness
- The importance of IT and ITG through the drivers for ITG in schools

Referring to the analysis and discussion of the Pilot interviews, main survey and the case studies finding, which relate to this objective (sections chapter 4, 5.2.1, 5.2.5, 6.2.2.1).

There is a high level of awareness and realization of the importance of both IT and ITG in attaining and creating value for the for-profit private schools among the Educational Directors interviewed during the pilot interviews from KHDA, ADEC and the MOE. This is reflected through their understanding of the importance of IT in achieving competitive advantage and differentiation within the school business. Moreover, their awareness of the level of IT schools have opted for as a reaction to standardizing quality education around the UAE was also evident. Hence, the need for effective ITG was evident from their point of view.

It is obvious that there is an acceptable level of realization of the importance of IT and ITG in prompting school business among school boards and senior managers, this is observant via the findings where a combined total of 86 percent of the respondents find IT to contribute successfully the schools strategy and vision. Although full realization of the role of IT in creating innovation in schools is not yet realized, its role in creating efficiency and effectiveness is highly realized by school boards and senior school managers. Additional almost three-quarters find IT governance to be part of the overall school governance practices. Moreover, all schools show to have drivers for implementing ITG within the organization regardless of the reasons perceived, which shows that there is a level of realization and understanding of the importance of IT and ITG in for-profit private school business industry. The top four drivers for implementing ITG in schools are basically emphasizing on improving efficiency, managing resources effectively and compliance with regulations. These factors are considered very important drivers and the main objectives of implementing ITG in organizations as revealed by literature(Luftman 2000, Weill & Ross,

2004a,b; Van Grembergen, 2003; Hwang & Liu, 2003; Kan, 2003, De Haes & Van Grembergen, 2006, Lee et. al. 2008.

The realization of ITG value creation is found to be very simple in schools that are still in the initiation phase of building IT infrastructures, however it is more recognizable in schools that have overcome this stage and went into a more mature level of IT implementations. This is accepted, as the schools that have already set the basic foundation of IT infrastructure moved into setting the processes and relational mechanisms of IT implementations in their schools, this agrees with the findings of De Haes and Van Grembergen (2008). In addition to the fact that these schools have considered IT as a new method of differentiation and achieving competitive advantage over other schools in the industry as they have reached a high level of competence in other educational aspects such as high qualified teaching staff, outstanding leadership, state-of art facilities and so (see section 5.2.1). Hence, reaching for new horizons of competition via use of larger quantities of technology and higher qualities required considering different methods of managing and governing all this technology to add value to the business. Therefore, although some schools' managers still lack the understanding of the term "IT governance" on its own, they do understand the need of ITG via curves of experience that have been taken for granted as a management skill to take full advantage of technology opportunities in adding value to the business. In addition to the learning curve that has formed as an accumulation of trial and error in attempts to avoid errors and retain best practices that prove to be working regarding IT, and hence have become part of the daily practices and the organizational structure.

Ensuring that managers are IT literate is not easy to achieve as confirmed by De Haes & Van Grembergen (2006). Moreover, the fact that having high-qualified educators with leadership, business and IT backgrounds is even more difficult to find. Hence, some schools find IT to not be of importance at strategic level due to the fact that the management lacks the understanding of IT and IT business relations. This lack of awareness has led to managers using their experience in creating value and profits via other channels such as more effective teaching and learning, raising fees and so on, moreover, IT is managed on ad-hoc basis. However, managers demonstrating more expertise and literacy in IT show to conceive more power of IT in creating business value.

When considering the real value of the managements awareness and realization of the value that IT and ITG can bring in into business and how it affects the overall business performance, the results showed statistically that this factor is still weaker than others in achieving competitive advantage for school business in the current settings(section 5.2.5). Moreover, when considering the individual factors in management's awareness that had an effect on the level of ITG maturity of the sample schools and on the business performance, it was found that the three most significant factors were the success of IT in delivering the schools overall strategy and vision. In addition to the role of IT in creating innovation, and having IT as part of the overall school governance. The most interesting fact found here was that IT innovations showed to positively have effect on achieving competitive advantages more than the role of IT in creating business efficiency or effectiveness. This might be due to the fact that although the role of IT in creating innovation is not realized by the majority of the principals(70%), however, it has shown to have significant implications on creating value for the remaining (30%) perceiving its importance($r=0.659$, $p<0.01$). Conversely, school management perceive the role of IT in creating business effectiveness and efficiency to be more important (see figure 19), where statistically these factors had no relation in achieving business performance to the school in their current settings. Thus, it can be recommended that school principals should concentrate on realizing the important of IT in creating innovation basically by considering potential business opportunities enabled by new technologies that can create positive business benefits to the school business. In addition, the management should also properly consider the way in which IT is being used to increase business efficiency and effectiveness, where it is apparent that this is done on an ad-hoc manner that is not bringing in business value as a return of high IT investments within the current ITG implementations in schools.

IT can be concluded that there is an acceptable level of IT value realization and awareness among school Principals and a good understanding of the value IT can create for the school business. However, it there is still some lack of understanding of the need for effective ITG as the terminology is new to most of the managers. Moreover, some managers lack the knowledge and understanding of employing IT to create business value due to the fact that these principles have a very little literacy in IT and business, hence not being able to realize the potentials of IT. Moreover, the drivers to implementing ITG reflect the "educational" orientation nature of opting for ITG in schools. As both the Educational

Experts and the school principals perceive the most important drivers to be gaining accreditations and certifications, attaining competitive advantage, and complying with regulations and legislations. These factors indirectly lead to cost reduction, profit increment, risk management that are some of the most important advantages of ITG as denoted in literature (Carroll et.al., 2004; Hwang & Liu, 2003; Patel, 2002; Hoffman, 2004; Patel, 2002; Kan 2003; Hwang, 2002) (see section 2.2.2), however, they are seen from a different corner by Educational leaders.

This elaborative discussion answers the first research question:

To what extent is ITG realized, recognized, and considered as a business partner in the for-profit private educational sector business.

Research Objective No 2: To evaluate the status of the current ITG practices implemented in for-profit private schools, and the related ITG maturity levels.

To meet this objective, thorough exploration, analysis, and discussions were considered in sections (Chapter 4, sections 5.2.2, 6.2.1.2, 6.2.2.2).

The target of this objective was to explore the current status of ITG implementations and practices found in the for-profit private schools in the UAE, to find similarities and differences and to highlight the most common practices in an educational context business industry. Moreover, by understanding the existing practices and the level of ITG maturity perceived by the school directors; a better realization of the current status may be understood.

To reach this objective the following aspects were considered:

- The frequency in which IT is on the management's agenda.
- The main topics discussed by the management.
- Whether IT value is measured or not.
- The extent to which IT functions inform business regarding new business opportunities delivered by new technologies.
- The extent to which IT is part of the overall school strategy.
- The extent to which IT and business are aligned and the forms of alignment demonstrated by schools.
- The existence of CIO in schools and whether the CIO is part of the management team or not.
- The ITG frameworks used .

- ITG maturity level and ITG performance rates in each school.

Due to the evolutionary rapid move of for-profit private schools into devoting massive investments in IT as a new era of differentiation, Educational experts have realized that many ITG practices have formulated in private schools as a result of the growing use of technology. This was a natural requirement to ensure that IT investments are bring in the proposed value they promise to the school business.

It can be concluded from the elaborative discussions and analysis of this dimension in the mentioned sections considering all three data sources regarding the ITG status in schools; that there are a number of good ITG practices in school. These are evident in the fact that IT is frequently on management's agenda regardless of the frequency of having it occurring as perceived by (96%) of the participants, where different IT aspects are discussed especially the ways in which IT functions and operations can be improved. In addition 90% of the managers find IT to inform the business of new technology that might have business value regardless of the extent to which this is done. Likewise, a combined total of 80 percent reveal IT and business to be aligned even though this perception varies in the level of alignment. Moreover, all schools have some practices that demonstrate the existence of IT business alignment to some extent. In regards to the existence of a CIO as part of the management team in school, 48 percent of the schools did have this practice in place with 94% showing that the CIO or Head of IT department or other experts do have influence on board decisions even though they vary in power. ITG maturity levels are acceptable and are aligned with other benchmarks available in literature for different industries. The average maturity level for all participating schools was 2.36 which is very close to, or slightly higher than the findings of other researchers in literature regarding the ITG maturity levels of other industries, such as the study of Luftman (2003) on 25 Fortune 500 organizations which came up with a total average of 2.17. Whereas, in their study, De Haes and Van Grembergen (2006) found that the Belgian Financial Services sector on average has a maturity level of 2.05. On the other hand, using the ITG performance metric by Weill and Ross (2005); the average performance was 50.5 percent which is relatively close to the average of ITG maturity of the school principals. This reflects the level of awareness of school principals of the actual status of their schools in general when they were given the opportunity to place their level on a 6 level ITG maturity scale which was proven statistically via independent sample t-tests (see section 5.2.5). Nevertheless, by

completing the ITG performance matrix, the calculation was done afterwards without any management bias or subjectivity.(see sections 2.3.1 for full details on ITG maturity and (2.3.5) for ITG performance metrics). This might agree with the study of Yanosky and Borreson (2008) where they found that the ITG maturity reported by most respondents from 255 Higher Education Institutes was relatively low; this was speculated that many HE institutions deal with ITG differently and therefore perceive its importance subjectively. In addition, ITG is seen to be in its early stages for these educational sectors that have yet a lot to consider in order of reaching higher ITG maturity levels(See section 2.4.3 for more details on the study). However, in general the level of ITG maturity at 2.36 is relatively low although higher than what is available in literature. Where it is denoted that organizations should have a minimum of a maturity level of 3 to start perceiving the real values of ITG(Weill and Ross, 2004b; ITGI,2009, De Haes and Van Gembergen, 2008).

Conversely, there are some ITG practices that still remain weak which are the lack of existing IT business value measurements metrics, as only 16 percent have some basic forms of measurement metrics in place. This drawback is noticed by both the experts and the school principals and is also revealed by the (ITGI,2008) as more than 42 percent of the Executives from all over the world use traditional ways of loss and profit to measure the IT perceived value.

Another striking finding of the research is that the current ITG structures implemented in school are the most significant factors that have lead to creating value in the current settings of the for profit private school business in the UAE. This was found in the statistical analyses more than the effect of the management's awareness and other factors implications on creating value. (see section 5.2.5). More research is required to discover the actuate rate of ITG contribution to value creation in for profit-private schools along with the other factors that lead to high business performance.

Moreover, statistically, it was found that the strongest current ITG practices implemented in schools that are adding value to school business is the existence of IT on managements agenda and the IT and business alignment. However, a weaker influence of the IT informing business is evident in bringing value to the schools(see section 5.2.5). This is logical, as it relates directly to the believe of schools that IT creates innovation in school business which is perceived to be not important by (70%) of the principals, hence this

implies that IT divisions are not successful in using IT to create innovation that brings in value to the business.

To summarize the finding of the second category regarding the current implementations of ITG in the sample of for profit private schools, it is clear that there are a number of good ITG practices in place that agree with many of the practices available in other industries. This implies that ITG practices can be implemented regardless of the business industry or size of the school which agrees with (Weill & Ross 2004). Moreover it is necessary to mention that regardless of the fact that most of the schools were still new to the term ITG, and had no previous knowledge regarding this concept, a number of good ITG practices were in place. This is due to the fact that these schools have overcome the initiation phase of building the IT infrastructure, in addition to having very high investments in technology which intuitively led to finding best ways to gain benefits out of these massive investments. This was done in an attempt to create new methods of gaining competitive advantage hence, learning from the best practices that have proven to work as a reaction to emergent IT situations over the years, and therefore considering them part of the school's management practices and overall school culture. With time, these were interleaved into the organizational day-to-day chores. Some practices existed in all schools regardless of the level of effectiveness whereas others were found to be existent in some schools with higher IT value perceptions such as IT/Business alignment which is affected significantly by the management's awareness and realization of the vitality and value IT and ITG adds to the business. Moreover, another reason for these differences in ITG implementations can be referred to the fact that some schools have not yet reached a maturity level in terms of academic performance, hence more effort is put on building the structures, enhancing teaching and learning, training staff and other academic aspects to ensure sustaining an acceptable academic performance level. Once these academic needs are fulfilled, schools will turn to seeking for new methods of differentiation and value creation. Some would go for increasing school fees as a return for providing outstanding education, whereas, others will go for other methods of value creation such as cost reduction via good process management such as considering effective ITG. Nevertheless, it is obvious that the curve of experience plays a significant role in the level of ITG practices implemented in for profit private schools. This helped schools to overcome the initiating phase of IT governance implementations where structures are in place and processes

started to crystallize hence moving into implementing more ITG practices that create more value to the school business and ensure reaching a competitive edge.

Schools that have started their ITG practices years ago have shown to have more IT business alignment practices in place. This finding agrees with the finding of De Haes and Van Grmbergen (2006) where they found in their research that organizations that have implemented ITG for years have shown to have higher business/IT alignment maturity levels than others that have started later. This could once again be due to the fact that these schools that started years ago have overcome the structure-building phase and IT infrastructure is stable enough. In addition to having the school already gone through a variety of differentiation methods some of which worked and others that haven't, hence leading the management to understand the need of involving IT in business strategy and vice versa. This realization and understanding led to implementing more alignment processes and activities that are not yet realized by other schools that are still in the initiation phase of building the IT infrastructures and have proven to bring value to schools ($r=0.696$, $p<0.01$).

In regards to the use of formal ITG frameworks, it is clear from the information provided in the main survey and the case study that the use of formal frame works is very weak with only 16 percent using simple forms of ITG frameworks and 62 percent "have no idea of what they are". In addition, statistically, frameworks are considered a very weak factor in creating business advantage for schools in its current status ($r=0.359$, $p<0.05$). This might be due to the fact that the private business sector has not yet reached the ITG maturity level that allows it to go for formal ITG practices, as some processes and more awareness need to be considered. Moreover, ITG concept is still not part of the schools organizational structure hence, schools still have a lot to do to gain full awareness of ITG value. Once this is achieved and all processes are in place, schools will then realize the importance of considering formal ITG frameworks to increase overall school effectiveness (ITGI,2010; ISACA, 2009) see section (Appendix B) for more information regarding ITG frameworks. On the other hand, the Educational experts and the school principals have both emphasized the fact that one of the strongest drivers for implementing ITG in schools was "To comply with the standards of Educational bodies" this has also shown as a form of standardized framework that the majority of schools considered. As schools ensured that, they comply with the IT standards of the accreditation or educational bodies such as KHDA,

and ADEC as a requirement to fulfill the requirements of overall school effectiveness standards. Schools need to consider using ITG frameworks that help in systematically opting for employing IT to bring in business value and return on the high IT investments.

Considering this elaborative discussion on the status of current ITG implementation in for-profit private schools in the UAE, the requirements to answer the second research question has been fulfilled which was:

What is the ITG status of the current ITG practices in for profit private school business?

Research Objective No. 3: To define the factors that might influence the level of ITG in schools including the enablers and the main barriers that are impeding effective implementation of ITG in for-profit private schools in the UAE.

This objective was comprehensively discussed and analyzed in the following sections of this research paper (Chapter 4, 5.2.3, 6.2.1.3, 6.2.2.4)

Regarding the factors that might have significant influence on the effectiveness of ITG implementations of school and as denoted by Luftman (2000) to achieve and sustain alignment demands which is considered the main dimension of ITG, organizations need to maximize enablers and minimize the inhibitors. Literature has defined many inhibitors hampering the effective implementation of ITG in organizations in different industries (Luftman et.al., 1995; McLeod & Smith ,1996; Luftman et.al, 1999; Teo and Ang, 1999; Gottschalk,1999 . Luftman, 2000; Guldentops et. al. ,2001; Weill & Ross , 2004b; Gerrard ,2005; Letsoalo et. al. ,2006; Lee et.al, 2008; De Haes & Grembergen,2008)(see section 2.2.4 for a more details regarding ITG Enablers and inhibitors). Enablers and inhibitors can differ from one organization to another depending on the strategy, market, vision, and other factors, hence there is no one set of enablers and inhibitors that is defined for all (Luftman, 2002).

In regards to the enablers that both the educational experts and principals -in the survey and in the case studies- perceive to help in ensuring better levels of ITG implementations in their schools if they were made available; the highest ranked enablers to effective ITG were:

- The management's awareness, support, and commitment. That agrees with the finding of other researchers such as Weill and Ross (2004b), Letsoalo et. al. (2006) who have considered top management commitment and support the first enabler to effective ITG. In another study conducted by Teo and Ang(1999) as cited by (Lee et.al, 2008), where they analyzed 168 firms in different sectors, they found that one of the top ranking critical success factors in IT/Business alignment was the management's commitment to the strategic use and importance of IT, in addition to managers IT literacy level.
- The availability of professional IT business value measuring metrics is a significant factor allowing for better ITG. This is expected as the most significant inhibitor selected by 64 percent of the school principals was the absents of IT business measurement metrics that help in measuring the returned value of IT, this comes in addition to the percentage of respondents of 50 percent having traditional profit loss and gain methods of measurements. Additional to another 30 percent having no idea on how to measure IT returned value; hence, the principals find that this factor if available could positively influence the effectiveness of ITG in their schools. This is also considered a significant factor by many researchers especially by Luftman (2000) where this was considered one of the most important criteria's of the six IT business alignment maturity criteria he has developed.
- The existence of well-defined IT structures such as IT steering committees, IT strategic committees, and CIOs. This factor also is of utmost important in literature as denoted by many researches (Gottschalk,1999;ITGI, 2003, Weill & Ross,2004b; Nolan & McFarlan,2005; Monnoyer and Willmott, 2005;De Haes & Van Grembergen, 2006 Letsoalo et. al, 2006).
- Stakeholder awareness and Support: this also considered an important factor by 66 percent of the school principals. This is due to the fact that ensuring that stakeholders have a strong buy-in and support to IT ensures that ITG practices will be formulated and supported by all stakeholders, hence ensuring effective implementations that work for the good of the whole organization. This takes many forms such as providing constructive feedback, suggesting solutions, participating in innovation, evaluating existing solutions and trends, participating in surveys and questionnaires. Which is also considered in literature as a strong enabler (Luftman, 2000;Letsoalo et.al. 2006, Lee et al, 2008). Moreover this contradicts with the findings of De Haes and Van Grembergen (2006) who found that "that IT strategy committee at the level of the board of directors is not necessary".

On the other hand, 96% of the schools do encounter barriers that prevent them from fully realizing the value created from IT. Among these inhibitors, the most significant ones selected are:

- The lack or absence of IT business measurement metrics that help in measuring the returned value of IT, this comes in agreement with the percentage of respondents of 50 percent having traditional profit loss and gain methods of measurements and another 30 percent having no idea on how to measure IT returned value.

- Lack of awareness on where to get external advice and consultation regarding ITG”
- Lack of communications between business, IT and Educational settings, which is revealed to be hindering the ITG processes in school by 56 percent of the school principals. This also can be explained due to the fact that there is no communication language between the three different majors, business people understand business, IT technical, and educational experts are knowledgeable about enhancing education. When it comes to the use of technology to add value to business in an educational background, links and communications are very hard if not impossible, as IT doesn't understand what business needs neither does business understand what IT can do, and both should be tailored to suit the educational business context.
- Lack of ITG training is also an obstacle; this aspect also works in the same direction as the other most selected inhibitors that are all concentrated around “management's awareness of ITG”. It is apparent that managers find it important to bridge the gap between IT, business, and Educational leadership via good training on ITG.

By considering these factors that are the most selected, it is evident that they are all of a “managerial” nature, as they basically crystallize around the fact that there should be more management awareness in ITG which will lead to better business, IT , and education communication, finding better IT solutions, and so forth. This could be achieved by gaining more training, and hence, being able to tackle the right advisors and experts in the field of ITG to increase business value via IT. This agrees with the findings of (Luftman et. al 1999) as he found in his research that most of the inhibitors pertain to social and managerial issues rather than being technical in nature.

Moreover, regarding the effect of the enablers and inhibitors on the overall gained business benefits a relationship exists between these factors. Statistically it has been evident that enablers are a strong factor that allow for better-returned value ($r=0.773$, $p<0.01$); however, a relationship also was concluded between the barriers and their effect on achieving high business outcomes, where inhibitors cause business to be hampered from achieving it goals. Hence a negative relationship exists between inhibitors and proposed business outcomes($r=0.487$, $p<0.01$) this effect agrees with literature (Luftman et.al.,l 1999, Lee et. al. 2008) .

This section has highlighted the most significant enablers that maximize realization of IT value via ITG in addition to highlighting the inhibitors that hamper effective ITG implementations in schools hence causing to not fully realize the potentials of IT investments in schools.

The enablers come in full agreement with literature where they have been defined for other industries hence applicable to the private school business too.

Moreover, 90 percent of the schools have stated that they do have inhibitors that impede the full realization of IT value. It has been concluded that enablers are resulting in added value to the school business whereas, inhibitors are negatively reducing the returned value.

With this thorough discussion, the third objective and research question has been covered which was:

- What are the main factors including enablers and barriers impeding the effective implementation of ITG in PES in its current context? And how do they affect the perceived outcome from ITG?

Research Objective No 4: To identify the perceived IT value created in for profit private schools as a result of ITG implementations.

This objective is essential to understand the perceived value created through IT and effective ITG in a private school business context. The aim was to investigate if the created value in the school context has any other perspectives than other industries. This objective was reached by considering the following value perception aspects:

- The extent to which IT investments create value to the school.
- The degree to which IT performs within the expectations of senior management
- The effect of ITG on creating competitive advantage and creating value including the forms of created value within the educational context. (Perceived value created by IT and Effective ITG).

To be able to thoroughly investigate this objective, analysis and exploration consisted of all data sources used in this study which included the experts' views, the main survey information, and the personal interviews with principals via the case studies. A full detailed analysis can be found in sections(Chapter 4, 5.2.5, 5.2.4, 6.2.1.5, 6.2.2.6)of this report.

To summarize the IT outcomes as a form of value creation in school business by considering the perceived returned value as principals conceive it, the value returned through IT investments, and the perception of IT performance in meeting the overall school expectations is at an acceptable level.

A high percentage of principals perceive that their IT investments have brought value to the school business(76%) regardless of the level of the value return. Moreover, all schools do believe that IT is performing within their expectations to different extents. It has also been found that the level of IT performance in a school closely relates to the returned value on IT investments, for instance the higher the IT performance meets the school expectations; the higher the expected business outcomes($r=0.814$, $p<0.01$).

The analysis of the findings show that all schools perceive value from IT to some extent, however, schools have different forms of interpreting the perceived value they realize from their IT and ITG implementations. The vast majority of schools perceive this returned value in a more educational oriented manner which indirectly results in increased business value. Nevertheless, this reflects the lack of awareness of management in most cases to directly perceive the level of IT value on their business, this could be due to the fact that most principals are specialized in educational leadership with no or little awareness of IT or business aspects. In addition to that, more than half the principals denoted that they use traditional methods of value measurement metrics depending on profit lose and gain. Whereas, another 30 percent indicated that they have no idea how to measure IT returned value, in addition to about 36 percent declaring that “No formal IT value metrics are available” is a barrier impeding ITG implementations in their schools this explains why they were not able to directly perceive the value of IT in increasing profits, and reducing costs. Other returned values of IT and ITG such as risk management and the value of IT in creating innovation requires more professional realization and awareness of ITG aspects among managers which has not yet formulated in some schools.

Some interesting trends exist in this data, as all the high ranking “perceived value returned from IT” are basically “Educationally” oriented rather than being more business oriented. Although indirectly they do have influence on the business by creating value through profit increment or cost reduction. Principals were not able to realize this fact explicitly, which is obvious in the perception of IT value in reducing costs (38%) and increasing profits(36%). However, via the increased enrollments (62%), reduced staff turnover (70%), quality services (66%), higher reputation via quality education (90%), stakeholder trust (80%); schools will definitely increase profits and reduce costs. This once again reflects the lack of management’s awareness regarding business and ITG aspects,

hence focusing only on educational leadership and value returned implicitly via improving education services using IT to create value.

In general, the lack of full realization of IT potentials in returning business value to schools can be due to the absents of IT value measuring metrics and due to the defined inhibitors that impede schools from realizing the actual value that IT can return to their school business.

Another finding is that the level of perceived IT performance in meeting organizational expectations does affect the principal's perceptions of the value returned on IT investments($r=.814$, $p<0.01$). This definitely agrees with the literature that ensures that better ITG performance leads to higher organizational efficiency and effectiveness (Kan 2003; Hwang, 2002, De Haes & Van Gembergen, 2008).

Statistically, it has been found that some factors had more influence in creating value in the school context than others. As the existence of ITG practices had a higher impact on value creation then management's awareness and the existence of enablers and inhibitors (see section 5.2.5).

Moreover, it has also been proven statistically that there is a statistical significant positive relationship between the ITG maturity in schools and the outcomes on business performance ($r=.688$, $p<0.01$).

Hence, it is concluded that schools have a moderate level of awareness of the returned and created value through IT and effective ITG, in terms of the value returned on IT investments, and on the perception of IT meeting the schools expectations. Nevertheless, schools have different ways to interpret their perceptions of the returned or created values. Moreover, the vast majority of principals see the returned value from an educational point of view. This is different from other industries that have a common language including risk, profit, cost reduction, and so forth. However, for educational leaders with less business and IT background, their interpretation of value would be in the form of increasing student enrollments, decreasing risks in the form of data loss, server down times, reducing turnover rates and so on. Moreover, these perceptions once and for all lead to increasing value, reducing costs, managing risks, measuring performance and aligning business with IT which are the main objectives and values created by effective ITG(ITGI,2005, Wessels and Van Loggerenberg, 2006).

Schools current ITG practices are creating value to some extent however, the lack of management's awareness and realization of the full potentials of ITG is still an obstacle facing schools in attaining business value through the use of IT. In addition schools need to increase their enablers and reduce the inhibitors encountered by schools that hamper them from realizing the full value that IT can create in their schools as it is not bringing value to schools in its current settings(see objective 3 above for full details).

Hence, this helps in achieving the last objective of this research along with the related research question that was:

What is the perceived value created through effective ITG implementations in for-profit private schools?

7.2 Conclusion

This research targets an unexplored sector that has unique characteristics different from any other business industry. The for profit private school business is a combination of both the business and service providing sectors, hence having the potentials and challenges of both sectors resulting in unique characteristics in terms of ITG aspects.

The research paper is an exploratory study attempting to highlight the current status of ITG in for-profit private schools. This includes the level of awareness and realization of ITG and its benefits to the school business, the status of current implemented practices, the factors affecting this status including the enablers and inhibitors and finally the perceived value of ITG as seen from an educational service provider business perspective.

Some detailed conclusions were drawn regarding ITG practices in for profit private schools. These included the fact that there is a good level of understanding of the value that IT creates to business among school managers. However, full awareness of the contribution of IT in creating value to school business is not yet fully realized. School managers lack the ability understand the full potentials of IT, this is due to the fact that they are educational leaders with very basic IT and business backgrounds, hence not being able to interpret business value via IT properly. This factor has proven statistically in the research to decrease the business value in its current context. Hence, management's awareness regarding ITG is not satisfactory to a level that can ensure creating business value for private schools. Moreover, there is a lack of realization of the role of IT in creating business innovation where this factor is significant in bringing new business opportunities

to the school business via new technologies. Moreover, the role of IT in schools which has only been realized mostly by the high performing schools, showed to be a significant factor in creating business value. Nevertheless, the results also showed that schools have not yet gained the required business benefits out of IT's contribution to schools effectiveness and efficiency although these factors are well realized in their importance by school directors.

In regards to the status of the current ITG practices implemented in for profit private school business, the research has found that there are a number of good practices in place. However, the practices have all formulated not due to awareness of the need for ITG practices to be in place, but as a reaction to incidences and events regarding IT aspects that have proven to work or to avoid certain IT related problems and risks, hence being taken for granted and integrating into the overall school strategy and governance. Schools average maturity level was found to be 2.36 on a scale of 5. Although this level is relevant to levels of other industries as revealed in literature, however, it is expected that schools should have higher maturity levels to attain the created value through the high IT investments in these schools. Another finding regarding the current implementations is that school managers and owners are basically involved in operational and functional IT decision making rather than being involved at a strategic level. This is due to the low level of communication of business, IT, and educational leadership and their ability to understand each other. In addition to targeting other ways of value creation such as raising fees, instead of decreasing costs and increasing value via effective ITG practices.

The most important practice considered by school principals and owners is the use of effective ITG and IT to ensure compliance with regulations and standards. This is due to the fact that these schools need to undergo quality assurance via these educational authorities to ensure they stay in business, hence achieve competitive advantage by sustaining outstanding performance levels. Moreover, the results also revealed that there is a positive significant relationship between the extent to which IT is on management's agenda and the level of business alignment in creating business value (see section 5.2.5).

Furthermore, one of the most important practices that is considered very weak in this business sector is the use of ITG frameworks. It was found that this factor is very weak in bringing in value to school business($r=0.359$, $p<0.05$). Where most of the schools have no idea regarding these frameworks. Hence schools are missing one of the most important factors that can help in systematically helping the school business gradually attain the

benefits of ITG in their business (Barton, 2004; Anthes, 2004; ITGI,2010; ISACA, 2009; COBIT, 2009).

In regards to the enablers and inhibitors as factors that have a significant effect on the proposed business value created through IT; the study shows that school business although having many good practices in place they do have many inhibitors impeding the full realization of the potentials of ITG on their school business. The most significant inhibitors are the lack of well communication between business, IT and educational leadership. This is obvious in the current infrastructure of schools where most of the schools still do not have a CIO or equivalent as part of the management team. Moreover, another obstacle that results from lack of understanding of ITG and the business effects of IT, is the lack of training regarding ITG. This is properly due to the fact that these principals are all holders of educational leadership qualifications, and lack the expertise in IT and Business hence, they consider not being trained on ITG an obstacle that impedes them from effectively deploying ITG in their schools. Another significant inhibitor is the lack of awareness of how IT value can be measured. This is apparent in the reliance of the majority of schools on traditional ways in measuring value of IT as any other service or facility. Hence, no real value can be recognized therefore, causing management to not fully realize the created value through IT. However, Enablers do exist that cause schools to have better ITG implementations in place more than others. The most significant enablers were the management's awareness and commitment to ITG, the availability of proper formal IT value metrics, the availability of IT structures such as an IT steering committee in school and the involvement of stakeholders in IT and ITG related aspects.

Moreover, in agreement with literature, it has been found the enablers available in schools help to maximize the proposed value of IT, whereas the inhibitors reduce the returned value through IT and effective ITG.

Hence the outcomes of effective ITG in terms of created value to the business is significantly affected by the schools ITG. Although IT is pervasive in schools, its full value has not yet been realized. Private school business in its current settings do not have formal IT value metrics in place such as ITBSC nor do they measure IT value in isolation of other school facilities and services. The study has found that there is a positive relationship between ITG maturity levels of the schools and the level of value created in schools through IT. Moreover, another finding is that the form of value perception of managers are

considered in an educational context. This is evident through the managements perception of the values IT returns in terms of increasing student enrollments, reducing turnover, ensuring compliance with regulations which all have an educational flavor. Managers did not indicate the outcomes to be in the form of cost reduction, risks management explicitly. However, the perceived value mentioned by managers does lead to these objectives of ITG indirectly.

IT was also found in the study that although innovation created by IT is a significant factor in creating value to school business, it is not yet realized. schools still do not have a good understanding of the role of innovation in creating business value, and hence IT divisions do not effectively inform the management regarding the new technologies that can be a business opportunity to school business in achieving competitive advantage.

Results also showed that for the four factors in the study, the most significant factor having positive affect in increasing the business performance and outcomes from IT was the ITG practices in place. Conversely, the management awareness in its current status and the enablers and inhibitors, were not fully successful working towards delivering business value to the school business.

Therefore, this research contributes in investigating ITG in a neglected yet attractive business sector which is the for-profit private school business which has not been explored prior to this work. The study lays down a conceptual and empirical foundation for future work on ITG practices in for-profit private schools; in this regard the key contribution of this research is to help business owners to consider their ITG practices, understand the enablers and inhibitors and current ITG maturity levels, while also understanding the proposed returned value all in an educational context which school business leaders understand. The research is also beneficial to educational authorities in realizing the potentials ITG can bring to the school business sector, in order to increase business value through more reliable methods instead of increasing fees that would be hectic to stakeholders, in addition to being able to consider this study to enhance the role of IT in creating value within the public school sector.

Moreover, the research should also be valuable to practitioners seeking to improve their business in similar contexts such as educational institutions, universities or colleges keeping in mind the slight differences. Hence this paper is intended to comply with the

concept of “Consumable IT research” being both academically rigorous and relevant to practice as put forward by O’Keefe and Paul(2000).

Therefore we can concluded that although IT is pervasive in the current for profit private school business in the UAE, the full potential of IT is yet to be exploited in this attractive business sector. The interest in IT and its vitality as a source for creating competitive advantage over other schools is evident but not fully achieved. Hence there are indicators of positive environments opting for more innovative use of technology to create value through IT and to deal with challenges facing the effective implementation of ITG in the for profit private school business in the UAE.

7.3 Limitations of the Research

The research has some limitations that should be mentioned here. Such limitations include the exclusion of the Emirates of AbuDhabi from this study, due to the time limitations where the procedures for gaining permission to distributes surveys and collect data required a very long period of time that was not possible to consider within the limited time frame available for this dissertation. In spite of this dilemma, a sample population from a large main city in the Emirates of AbuDhabi was considered instead. Moreover, another limitation was the confidentiality of some information, as schools were not willing to give precise figures regarding the annual profits which might have given a clearer reflection of the perceived value of IT and ITG on school business.

7.4 Recommendations

A few recommendations to enhancing the role of ITG in achieving complete advantage in for profit private school business, which would be beneficial to all stakeholders involved in this attractive business. These recommendations are a rich insight extracted from the findings of the study.

- IT is recommended that higher educational authorities take advantage of ITG and its role in enhancing the governance over the massive IT investments whether in the public or private educational sector.
- School managers need to realize the importance of ITG in creating value and achieving competitive advantage over other competitors in the market by creating value through IT, managing risks, reducing costs, managing resources and measuring performance. Consequently, ITG can help to increase the schools’

efficiency and effectiveness hence creates better value and higher profits without putting extra burden on parents through cost wars or fee increments.

- Managers need to be held accountable for considering ITG strategically
- School owners and directors should consider literacy and awareness on ITG a vital aspect. Where this helps to bring in the power of educational leadership, IT and business in achieving the strategic goals of the business.
- ITG should be part of the overall school governance and IT should become a business partner not just an enabler.
- School principals and managers should start a reformation process where the CIO or an IT strategic community should be considered and should be part of the management team. This is essential to bridge the gap between Management, IT and business.
- Incumbents and entrepreneurs in the private school business should reconsider the evaluation of the potential for innovation IT can create to the business.
- Managers need to start using professional IT -business value measurement metrics to measure the value IT brings or fails to bring into the business.
- At the initiation phase of considering ITG implementations, schools should use external advisors and experts as an effective source of knowledge and guidance to ITG related aspects.
- Schools should also consider the use of ITG frameworks to systematically have more control over IT and IT investments to ensure high created and returned value and hence sustain a competitive edge.

7.5 Suggested Future Research

This research targeted an unexplored business sector that has a lot of rich ITG considerations yet still has a lot to be explored. The research could be a starting to further exploratory research in the field regarding this very attractive business sector. Some suggestions are:

- The reasons behind the absence of effective IT value measurement metrics in for-profit private schools.
- Measuring where school business strengths and weaknesses fall in terms of the 5 main dimensions of ITG .
- Repeating the same research but from a CIO perspective instead of a non-IT executive (Principal) and comparing the two findings.
- Exploring closer the reaction between ITG and IT/Business alignment in for-profit private schools.

- Investigate the effect of ITG on school profits and incomes in an attempt to isolate the effect of ITG from other factors.
- Explore the real reasons why for-profit private school business does not perceive IT or ITG to contribute in creating innovation in school business.
- Exploring the best ways to increase school managements' awareness of ITG away from technical jargon.
- Explore the reasons behind the absence of external consultations and advisors in the field of ITG.

Appendix(A): Objectives of implementing effective and efficient corporate governance

Some objectives of implementing effective and efficient corporate governance in enterprise are thoroughly discussed in Appendix (A) of this paper.

- Ensures there is more Transparency within the organizational actions.
(Vishwanath & Kaufmann ,1999) as cited by (Lee et.al., 2008) define transparency as “a flow of credible and timely economic, social and political information”. Bushman and Smith (2003) define it as the wide spread availability of relevant, reliable information about the periodic performance, financial position, investment opportunities, governance, values, and risk of publicly traded firms. This is also maintained by ensuring the transparency of the organizations operations to invertors and stakeholders via supplying them with appropriate and trustworthy information. Therefore, it is intuitive to see that stakeholders seek transparency in organizations they contribute to, as they need to be aware of the decisions made, mechanisms of problems solved or encountered, they should also have a say in all aspects of their interests and be informed of results and outcomes frankly.
- Practicing and demonstrating good corporate responsibilities.
- Multiple stakeholder management and capital attraction.
Well governance leads to the trust of investors and their interest in the organization; therefore, attracting capital. According to George Cox, General Director of the institute of Directors, in the introduction to director’s guide to “Corporate governance: “Modern capitalism – the model to which virtually the whole world now aspires- is totally dependent on high standards of governance”.(Cox, 2005). This implies that governance via the rigorous supervision of company management to ensure that business is performed competently with integrity and due regard of stockholders interest; is important to attract investors to buy shares in it and as a result, organizations will stay on the competitive edge and will maintain investors’ confidence. It will improve organizational prospect of obtaining funding from banks, investors, and venture capitalists. The presence of proper accounting and bookkeeping practices increase confidence in the firm and makes them less risky to invest or finance. Firms that have information disclosure tend to have healthier growth rates and ratios of ordinary profits to that of capital than firms who do not do so (Wiell & Ross, 2004; ITGI, 2009).
- Compliance with applicable laws and regulations.
Corporate governances ultimately depends on good functioning of the board of directors; therefore, compliance to regulations will allow well tracking for any deviations from good governance; which is key to the performance of companies and their capacity to attract capital (Cox,2005). Well-established CG frameworks ensure that boards monitor managerial performance effectively to achieve equitable return to

shareholders and uphold the values of fairness, transparency, accountability, and honesty.

- Managing Risks effectively and efficiently:

As Peyman Mestchain, Director of Risk management Practices puts it “The sensible company takes risk- but not gambles” (Cox,2005). Stakeholders need to trust organizations they are involved with by ensuring they are exposed to the bare minimal risks and if uncontrollable; they have properly considered these risks and controlled them. Risks cannot be totally avoided without forgoing business opportunities associated with new customer types, new technologies, new markets, products, or trends. In other words, risk avoidance is by itself risky; were it might limit the organizations opportunities for profit. Organizations should include risk management in the CG umbrella to ensure commensurate awards are associated with risks taken via accessing reliable information that allows proper forecast of awards associated with such risks that are worthwhile to go for (Baysinger & Buttler, 1985; Hermalin & Weisbach,1988, Lee et. al., 2008).

- Good CG helps in extending enterprises...

Organizations have realized the benefits of collaboration and partnerships in achieving growth and competences. This growth leads to more complex networks of relationships and strategic partners, such as: joint ventures, alliances, mergers. Such relationships require delegation of accountability and decision making rights that lead to high performance in organizations.

- Helps in overcoming and controlling challenges resulting from Enterprises’ increased dependency on strategic assets (such as people, knowledge, technology, intellectual capital, information) or on external parties (outsourcing, strategic alliances) and the need to have them accessible at all times.
- To effectively and efficiently manage and control data and information that is crucial in decision making and overcoming high risks. This is where ITG plays a significant role in CG.
- More effective resources optimization, capital and profit maximization. This is achieved by allowing shareholders to participate in critical managerial decision-making processes to explore new potentials and minimize risks (Lee et.al.,2008).
- Effective CG may impact on companies’ board, shareholder activism, compensations, anti-takeover provision and investor protection (Baysinger & Buttler, 1985; Hermalin & Weisbach,1988, Lee et. al., 2008). The authors agree that although the principle-agent concept may vary from one corporate to another depending on many influential factors; they see that successful CG structures have a positive impact on corporate performance.

- Value creation is one of the most important objectives of good CG this brings new value for the enterprise, or helps in maintaining and extending existing value while eliminating any initiatives or assets that are not creating value for the organization. Good Governance allows the organization to analyze its capabilities in creating, maintaining, and managing value while balancing stakeholders' interests. Furthermore, High correlations between shareholders wealth creation and corporate governance have been realized. Moreover, companies with good governance practices show good management of quality, acceptable risk management, wealth creation for employees, acceptable customer wealth creation, and supplier wealth is also considered, and an acceptable wealth creation for society at large compared to other companies that have weaker interpretations of CG, all of which are necessary factors in the enterprises value creation. (Liang & Meng,2004) .

Appendix (B): ITG Frameworks

A briefing of the most popular ITG frameworks which are used to implement effective ITG, monitor IT or evaluate IT in organizations, therefore, COBIT4.1, COBIT5, ITIL, ValIT and BMIS, Weill and Rose ITG performance measure is demonstrated thoroughly bellow:

1. COBIT 4.1- COBIT5: (Control Objectives for Information and Related Technology)

COBIT was developed by ISACA (Information Systems Audit and Control Association), published, and intended by the ITGI as a comprehensive ITG framework. It aims at balancing IT risk with investments and controls (Carroll et. al., 2004). COBIT is in an upgrading phase from COBIT 4.1 to COBIT 5. The COBIT framework addresses the most important aspects related to IT, in addition to addressing the complete life cycle of IT investments to deliver IT value to business. COBIT is a business-oriented framework that fosters all capabilities of IT for the benefit of the business it functions in. COBIT 5 has been released in April 2010, according to (ITGI,2010), this update is not due to short comes of the previous version, but is a demand to upgrade the framework to meet the needs of the dynamic rapid changing economic and business requirements. Moreover, it is more stakeholders oriented opposite to COBIT 4.1 which was auditory based. In addition, COBIT 5 is more aligned with the most recent thinking in enterprise governance and IT management practices. Although COBIT 4.1 was considered very effective, it was considered complicated and suffered lack of transition materials and implementation guidance to assist IT professionals and organizations in general to implement effective ITG (ITGI, 2010).

COBIT is considered the highest level of ITG governance that has been developed to suit any enterprise by providing an overall framework built on an IT process model. Other frameworks such as ITIL, ISO/IEC 27007, are considered subsets that are mapped into the more holistic COBIT framework in particular areas. Because COBIT is a set of proven and internationally accepted standards, implementing it in an organization is a sign-of health and well running which increases stakeholders trust and increases transparency.

The advantages and objectives of using COBIT in organizations can be summarized as:

- COBIT defines all processes, goals and metrics essential to achieve effective ITG (ISACA,2009)
- Defines the responsibilities of each process using a RACI chart (identifies who is Responsible, Accountable Consulted and/or Informed).(ISACA 2009).
- COBIT helps in creating harmony with other frameworks, as it is often used at the highest level where it harmonizes with other frameworks such as ITIL, ISO 27001 and 27002, PMBOK. It ensures their alignment to the business needs and covers a spectrum of IT related activities, especially in COBIT 5 which maps each of the these frameworks to COBIT(ITGI, 2010).
- Ensures that accepted IT objectives that control good practices are reachable(ITGI, 2010)
- Helps in identifying significant weaknesses in controls (Wessels & Van Loggerenberg, 2006; ISACA 2009, ITGI,2010).

- Ensures reasonable assurance that the impact of risks associated with the defined control weaknesses are properly defined and managed (Wessels, Van Loggerenberg, 2006; ISACA 2009, ITGI,2010).
- Executives are guided on corrective measures that must be adopted (Michael, et.al.,2008; ITGI,2010).
- Due to the nature of COBIT as being both quantitative and qualitative, management is informed of the true status of the controls and management of IT in their organizations.(Michael, et.al.,2008; Guldentops et al., 2002; ITGI,2010; ISACA, 2009).
- Allows driving good practices to ensure control over IT investments and associated risks (Lomparte, 2008; Michael, et. al., 2008; ITGI, 2010).
- Because it is based on standard and internally recognized best practices, it ensures compliance with regulations, laws and contracts (Lomparte, 2008 ;Michael, et. al., 2008, ITGI, 2010, Abu-Musa, 2009).
- Gives more trust in transactions, service provision to business partners and stakeholders therefore, ensuring that IT processes fully support the business objectives (Lomparte, 2008; Abu-Musa, 2009; Bodnar, 2003).
- COBIT helps CEO's to evaluate the efficiency of value IT adds to the business, to manage resources, to measure performance allowing the fulfillment of business goals, which is achieved by providing CEO's the required awareness to direct and monitor the strategic alignment of IT/Business and by realizing the impacts of such alignment.
- COBIT helps to drive better ROI, better delivery of more effective IT, enables solutions by enhancing the business processes and identifying and controlling risks associated (ITGI, 2009; Michael,et. at., 2008).
- COBIT is considered a good practice for strategic IT planning, for the use of IT in organizations, managing IT investments, projects, risks, therefore allowing better control over IT processes that are critical for supporting the business.

The COBIT framework in version 4.1 includes the following(ITGI,2009):

- Framework: COBIT organizes ITG management , control objectives and good practices by IT domains and processes, which are linked to the business requirements. COBIT contains 34 high-level control objectives, one for each IT process which are grouped into four domains: plan & organize, Acquire and Implement, Deliver and Support and Monitor and evaluate. For a thorough description of the four main domains of COBIT, refer to Appendix(A)
- Process descriptions: included for each 34 IT processes where it covers the business and IT responsibility areas from the start to the end.
- Control objectives: generic best practice management objectives for IT processes.
- Management guidelines: tools helping to assign responsibilities and measure performance.
- Maturity models: profiles of IT process describing the current ITG status and the proposed future position.

According to (ITGI, 2009), the four main domain's as mentioned above are plan and organize, acquire and implement, deliver and support, and monitor and evaluate a brief description of each is even as follows:

1. **Planning and Organization:** the domain concentrates basically on IT stagey, IT organization, IT relationships, the architecture, and investments. It also considers well management of communication aims and direction in addition to aspects regarding human resources management, compliance-management, risk management, project and quality management.
2. **Acquisition and Implementation domain:** encompasses aspects such as technology infrastructure, and how it provides key solutions, ensures effective application software choices and implementations. It also covers procedure development and maintenance, systems installation and accreditation in addition to effective change management which is essential to ensure the acquisition and implementation of technology serves the business needs and helps the business to achieve its goals.
3. **Delivery and Support domain:** this domain concentrates on the effective delivery of the IT value to business and on highlighting the effectiveness of IT support in achieving business goals. This domain includes objectives clarifying service levels, the effectiveness of managing stakeholder's services, capacity and performance management, the assurance of security systems, allocation of costs while defining where costs are located, user and organizational learning and training, configuration management, incident management, data and information management, facility management and operations management.
4. **Monitoring and Evaluation domain:** focuses on assessing internal controls and obtaining independent assurance in addition to monitoring processes.

COBIT framework clearly defines processes, goals, and metrics to measure performance. Such measures include outcome, process and performance metrics and indicators. Figure(40) shows the relationship between (processes, goals and performance metrics and how each feed into the other in a cause effect manner).

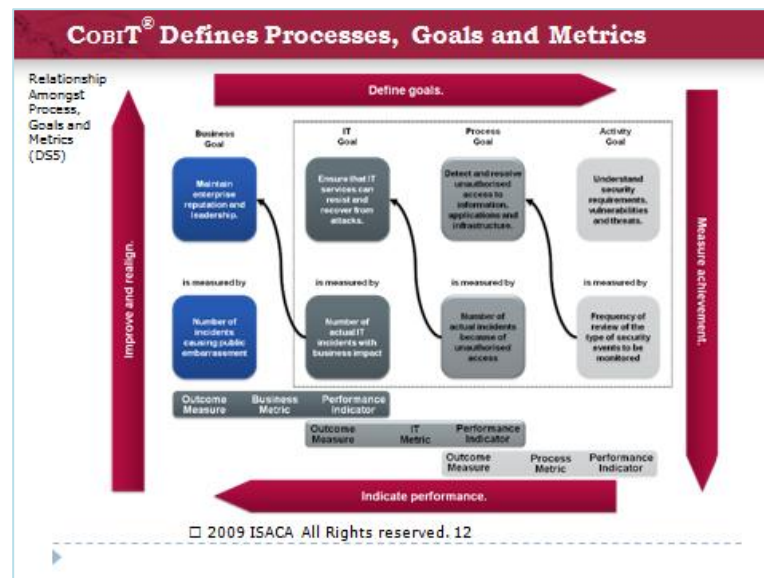


Figure 40: Relationships amongst processes goals and Metrics- A COBIT framework(ISACA,2009)

COBIT also helps in defining responsibilities for each process using RACI charts as shown in Fig(41), therefore, ensuring the clear delegation of roles and responsibilities of activities assigned to different levels in the organization.

Defined Responsibilities for Each Process												
RACI Chart												
A RACI chart identifies who is Responsible, Accountable, Consulted and/or Informed.												
Activities	CEO	CFO	Business Executive	CIO	Business Process Owner	Head Operations	Chief Architect	Head Development	Head IT Administration	PMO	Compliance, Audit, Risk and Security	
Link business goals to IT goals.	C	I	A/R	I	C							
Identify critical dependencies and current performance.	C	C	R	A/R	C	C	C	C	C		C	
Build an IT strategic plan.	A	C	C	R	I	C	C	C	C	I	C	
Build IT tactical plans.	C	I		A	C	C	C	C	C	R	I	
Analyse programme portfolios and manage project and service portfolios.	C	I	I	A	R	R	C	R	C	C	I	

Figure 41: COBIT RACI chart (ISACA,2009)

COBIT 4.1 framework, as denoted by (ISACA,2009) report, has the products organized into three main levels:

- Executive management and board members.
- Business and IT management.
- Governance, assurance control and security professionals.

Each of these levels are supplemented with an adequate range of products that help in effectively implementing the framework. The primary audience are defined, along with ITG questions related to each level and the products that provide responses to their questions See figure (42)

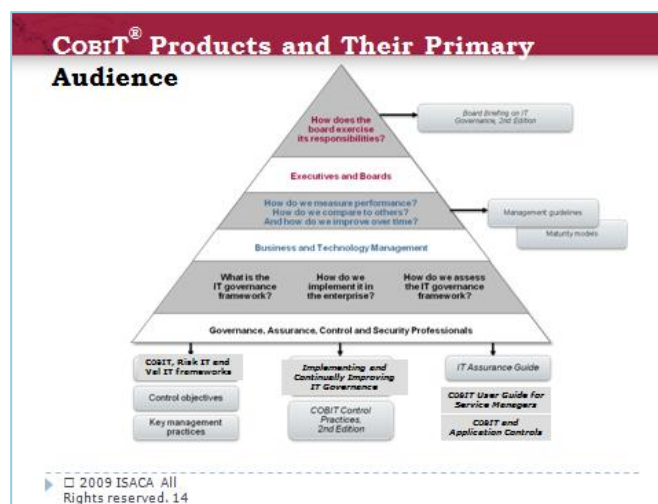


Figure 42: COBIT products and their primary audience. (ISACA,2009)

The COBIT framework and supporting tools are meant to help managers in bridging the gap between IT and business for the benefits of stakeholders. All the components of COBIT interrelate to each other to achieve this goal. Figure (43) shows the main COBIT components and how they relate to each other, therefore providing support for ITG requirements for all its audiences.

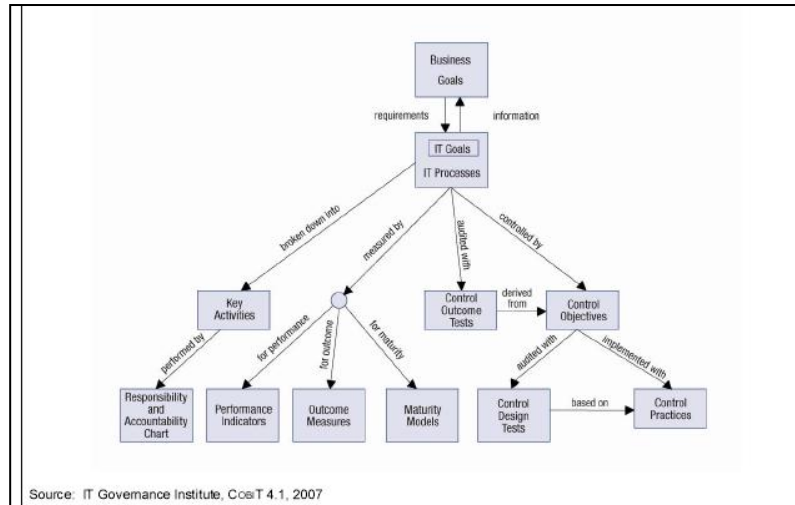


Figure 43: Interrelationships of COBIT components (ISACA, 2009).

To summarize, “IT resources are managed by IT processes to achieve IT goals that respond to the business requirements. This is the basic principle of the COBIT framework” (ITGI, 2007), as illustrated by the COBIT cube. (see figure 44).

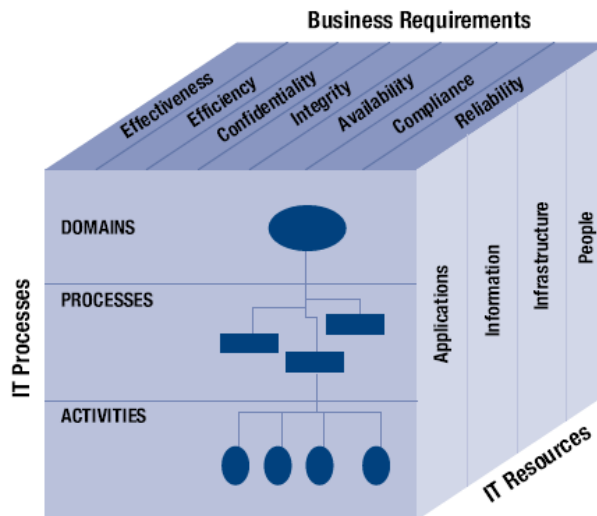


Figure 44: The COBIT cube (ITGI, 2007)

According to (ITGI, 2007), and as mentioned by many researchers in literature, COBIT's structure can be analyzed to having 34 objectives. These objectives are categorized under four main domains as mentioned above (planning and organization, acquisition and

implementation, delivery and support, and monitoring and evaluation)(Lainhart, 2001; Hadden, 2002; Bodnar, 2003 and 2006; Brown & Nasuti, 2005b; Violino, 2005; Hardy, 2006). The framework also defines which of the seven information criteria (effectiveness, efficiency, confidentiality, integrity, availability, compliance and reliability), and IT resources (people, applications, technology, facilities and data) (Abu-Musa,2009) which are essential for each IT process to fulfill the business requirements(Bodnar, 2003). Figure (45) depicts the overall COBIT framework.

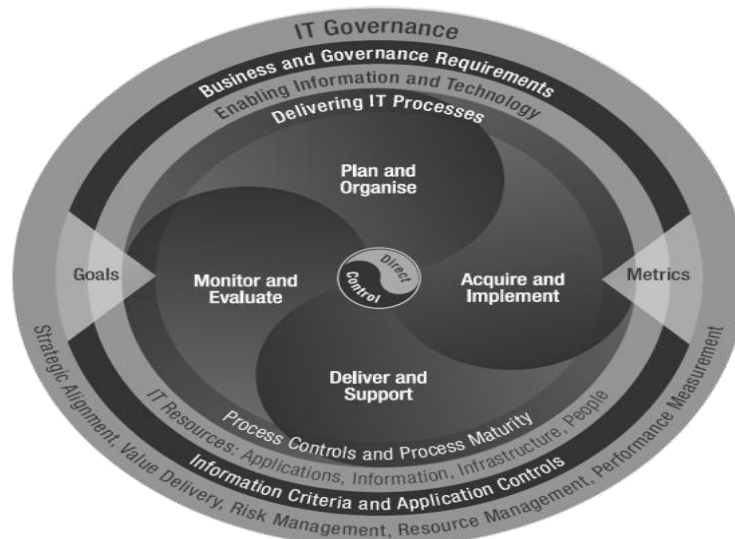


Figure 45: : Depicts the overall COBIT 4.1 framework, (ISACA, 2007)

Business orientation, is the main theme of COBIT, COBIT is built on the following principle” To provide the information that the enterprise requires to achieve its objectives, the enterprise needs to invest in and manage and control IT resources using a structured set of processes to provide the services that deliver the required enterprise information”(ISACA,2009).

Maturity levels are another valuable component of COBIT, it helps to indicate where an organization is currently standing in terms of ITG implementation and where it intends to be in the future. More valuable, it also gives the current status of the industry to allow benchmarking on a scale of (0-not existent) to (5-optimized) ITG. The benefit of the maturity model is that it is relatively easy for executives to assess their current position to realize if any improvements are desired. Managers can then, work on the gaps to find their way up the scale figure (46) shows the maturity models graphically(ITGI,2007).

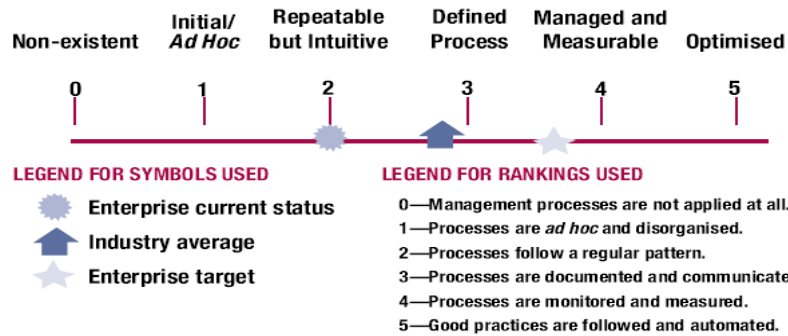


Figure 46: ITG maturity scale (ITGI,2007)

The strength of COBIT lies in its generic framework that is suitable for any organizational context. (ITGI, 2003). Williams (2006) argues that other than COBIT, there is no non-proprietary framework that comprehensively covers the total spectrum of structures and processes relevant to ITG. In 2005, a survey was carried out by PwC on behalf of the ITGI. The results of the survey

showed that 75% of the participant organizations already implementing COBIT found that it was either very useful or somehow useful, however about 10% had a negative response, revealing that COBIT was suffering complexity as a framework (Williams, 2006; Abu-Musa, 2009; ITGI, 2006). Another positive aspect of COBIT is that it blends well with other standards such as ISO 20071, ISO 20072, ITIL, CMMI (Michael, et.al., 2008). Moreover, it is understood by managers, as it is business oriented. On the other hand, COBIT does have some drawbacks as highlighted by many researchers; it is criticized for its complexity in navigations and in spotting points of relevance by users (ISACA, 2005; Abu-Musa, 2009; Wessels & Van Loggerenberg, 2006). As a result, the ITGI issued many guidelines, and publications to clarify the ambiguity and confusion, which added more documentation and references to the framework, therefore making the process more difficult. Another negative aspect is that it is an integrated all in one framework, which made it very hard to consider specific points of interest or content relevant to organizational customized needs due to the high-level standard based structure it was built around. COBIT covers all aspects of ITG, and blends well with other frameworks to form a complementary framework (such as ITIL for services, ISO 20071 for security and Val IT for IT value). However, it is found to be very difficult for organizations to implement all these frameworks in the case of full coverage of all ITG aspects (Michael, et.al., 2008; COBIT 5, 2010).

COBIT 5:

To overcome these defects in COBIT 4.1 and to increase the effectiveness of COBIT to meet the business demands, while being more simple and holistic. ISACA has released the COBIT 5 version in April 2010 that is considered more determined on stakeholder value additional to being more flexible in meeting today's business needs.

According to (ISACA, 2010), the benefits of COBIT 5 over COBIT 4.1 are summarized as follows:

- COBIT 5 is consolidated into a single overarching framework providing one consistent and integrated source of guidance. COBIT 5 consolidates and integrates the COBIT 4.1, Val IT 2.0 and Risk IT frameworks and also draws significantly from

BMIS and ITAF. In so doing, a new and more complete and consistent framework is created. This framework integrates COBIT and ISACA's research to create a single framework that covers areas such as value, risk, security, and assurance to overcome the difficulty of using multiple frameworks and publications. The new structure is flexible, hence, allowing future ISACA and non-ISACA standards, frameworks, and regulations to map in.

- Maintains consistency in concepts and terminology used in the level of details.
- An easy transactional model from COBIT 4.1 to a higher version.
- Allows users to focus on specific topics and provide an easy to navigate framework that is easy to locate relevant areas meeting users needs.
- COBIT 5 is built on better understanding of stakeholder needs.
- Further guidance is provided in areas found to be confusing or ambiguous e.g. enterprise architecture, people skills, design making.
- Ensuring that governance and management processes integrate both business and IT responsibilities.
- Aligns COBIT with global governmental and market-driven enterprise and ITG initiatives such as sustainability and green IT.
- Clarify and distinguish between IT management and ITG while showing how they relate to each other with processes integrating both business and IT responsibilities to the two aspects.
- This new publication provides more "How-to" documentation such as ways of approaching enterprise governance of IT to enable strategic planning, also by demonstrating how to define the most needed areas of improvement in the enterprise, and how to perceive the benefits of implementing COBIT 5 while demonstrating how it is best used as a framework.

New processes have been added, while others modified, however, the current four-domain format of COBIT 4.1 are retained but are used to focus on management processes. Some simplification and consolidation of processes is also proposed. A new focus on governance activities that are at the level of the board and executives are organized in three new domains aligned with ISO38500: Evaluate Direct and Monitor. Figure (47) provides an overview of the new COBIT 5 model.

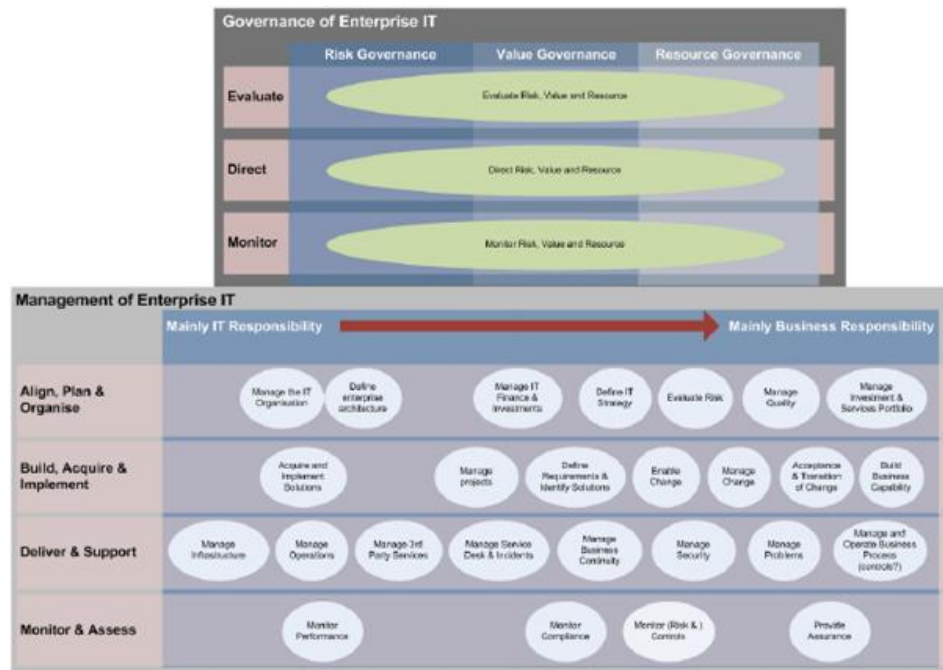


Figure 47: COBIT 5 process model (COBIT5, 2010, ITGI,2010, ISACA,2010)

2. ITIL (IT Infrastructure Library) model:

The IT Infrastructure library model (ITIL) was developed by the UK's central computer and telecommunications agency (CCTA) in 1987 for governmental agencies (itSMF,2007; Michael, et.al, 2008). Now it is intended by the office of government and commerce and managed by itSMF USA that is dedicated to advance best practices in IT service management (ITSM).

Service Management is defined as "a set of specialized organizational capabilities for providing value to customers in the form of services"(itSMF, 2007). Kim,2003 suggests that organizations should use the ITIL framework to identify and improve business processes using a set of best practices that can then be matured by integrating the proper technologies.

ITIL provides a framework for best practices in service management, it has grown ever since its creation to become the most widely accepted approach to IT service Management worldwide (itSMF, 2007; Michael, et. al., 2008).

Literature reveals that ITIL has many benefits, and advantages to organizations implementing it, (itSMF,2007; Michael, et.al., 2008, ITGI &OGC,2008; Arraj, 2010). Some of the most important benefits of ITIL for organizations are:

- It helps in increasing customer satisfaction regarding IT services.
- Increases business profits and ROI as a result of service availability, as CIO executive boards reported in 2004, that 30% of global companies with revenues of more than \$1 billion perceived the potentials of ITIL to their organizations and it was expected in that study, that by year 2008, the adaptation would double with more than \$1 billion in revenue. (CEB,2006; Michael, et.al., 2008)

- Cost reduction and financial savings from reduced rework, time-wastage, effective resource management and allocation.
- Improved time-to-market for new products and services.
- Improved decision-making and optimized risk management.
- Helps organizations to align their IT services with business needs. The ITIL gives IT opportunities to understand business needs.
- Agreement upon realistic service levels between IT and business to ensure proper value delivery at an acceptable cost (Arraj,2010).
- Provides predictable and consistent processes that help to meet customer's expectations, as well as providing best practice processes that help in meeting regulatory compliance requirements.
- Efficiency in service delivery through well defined processes and clear accountabilities and responsibilities in place through the use of RACI matrix (Arraj,2010).
- Measurable services and processes that can be evaluated and improved as it is hard to manage what can't be measured. Processes in ITIL are measurable therefore, allowing accurate delivery and overall effectiveness(Araj,2010)
- Provides a common language that is understood by all.

ITIL is a set of best practices built around a process model based view of controlling and managing IT operations in the field of IT Service Management (ITSM). ITIL is basically a library of books, each of which describes the best practices that make up the lifecycle that forms the ITIL model (ITIL(b),2007).

Recently, ITIL is in its 3rd version. Version 3 had many benefits over its ancestral versions especially version 2, as it has more "how to" instructions, and inconsistencies were considered and removed, in addition version three is more business-value oriented than being process oriented as was the case with version 2. Further, version 3 has a more strategic approach than the tactical approach of version 2 to ensure improving the link between business needs and IT.

Version 3 consists of five core books, covering the service lifecycle, and a sixth book containing the official introduction, which provides an overview of the five books and an introduction to ITSM. Figure(48) displays the overall framework components making up the ITIL framework.

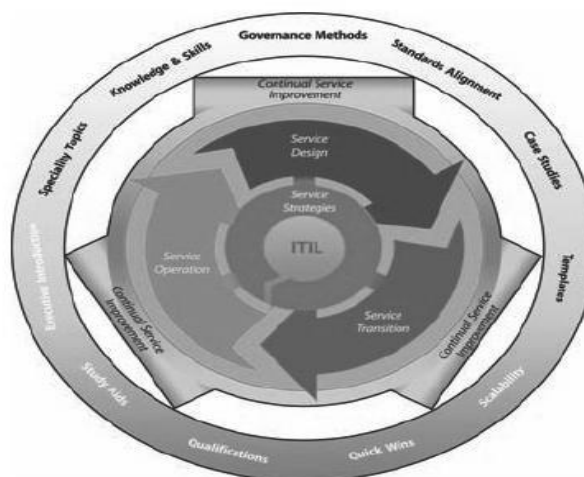


Figure 48: Displays the overall framework components making up the ITIL(ITIL,2007).

The five books of ITIL are service strategy, service design, service transition, service operation, and continual service improvement.

Any business requirements will initiate the service life cycle that flows through the 5 books (see figure 49), to help in ensuring a high quality IT service system.

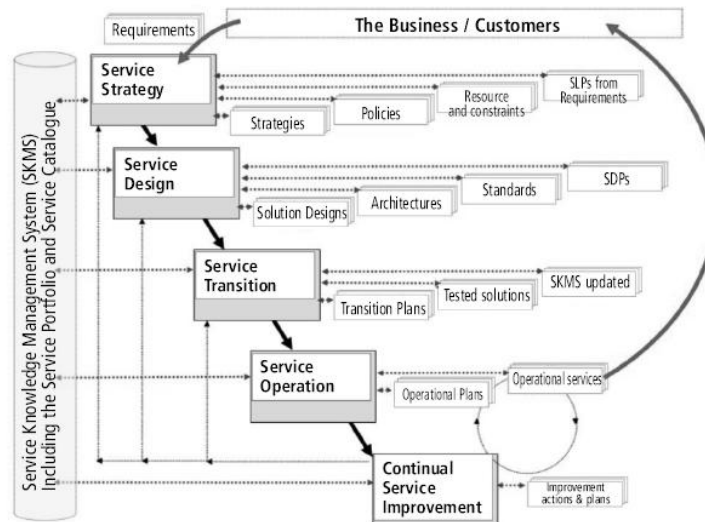


Figure 49: The ITIL lifecycle, depicting the 5 books of ITIL and related processes. (itSMF,2008)

A brief description of the five books (lifecycle stages) is given as follows (ITIL,2007).:

Service Strategy(SS)

This strategy endures that organizations realize that their customers are not buying products, but in fact, they are buying satisfaction to their specific demands and needs, Hence, service providers must ensure that the services provided are perceived by customers to deliver value in the form of outcomes they require.

The services strategy book also helps organizations to effectively define their potential customers, realize their potential markets that they are competing in. Moreover, the book helps in ensuring that the service providers have a solid understanding of the culture of the organization in which it operates under. Service providers don't operate in isolation, therefore, they need to understand the potential of competitiveness in the same market segment, and how they will differentiate among competitors, thereof realizing a strong need for a rigors service strategy.

Evidently, the service strategy is the core of the ITIL version 3 lifecycle. This book covers aspects of IT service such as Financial Management, ROI, Service Portfolio Management, Demand Management, Organization Design, and Organizational Development.

Service Design (SD):

This stage is important within the business change process, that is the initiator of the ITIL lifecycle (as depicted in the previous figure(19) , the role of SD can be defined as "The design of appropriate and innovative IT services, including their architectures, processes, policies and documentations, to meet current and future agreed business requirements"(ITIL,2007).

The main aims of the SD book are to:

- Meet the business needs and outcomes using well-designed services.
- Support the service lifecycle with appropriate design processes.
- Identify and manage risk efficiently and effectively.
- Design secure infrastructures, environments, applications. Data and information resources and capabilities.
- Provide measurement methods and metrics to indicate status and current position of processes and overall service effectiveness and performance.
- Produce plans, processes, policies, standards, documentation required to support the design of quality IT solutions.
- Provide a framework that will help in developing skills and capability with IT.
- Contribute to overall improvement in IT quality services

The DS model includes Availability Management, IT Services, Continuity Management, Information Security Management, Supplier Management.

Service Transaction

The role of this book is to deliver services into an operational use for the need of the business. IT focuses on implementing all aspects of a service while ensuring that the service can operate under all circumstances.

The key processes in this stage are change management, service asset and configuration management, and Knowledge management.

Service Operation (SO):

The purpose here is to deliver acceptable levels of services as perceived by users and customers. In addition to managing applications, technology and infrastructure that support the delivery of the services.

This stage of the lifecycle is responsible for value delivery and outcomes to business. The key processes and activities of this stage are: Event Management, Incident Management, Request Fulfillment Processes, Access Management, and Problem Management.

Continual Service Improvement (CSI):

CSI is concerned with sustaining value for customers through a continual improvement and evaluation process to ensure the quality of services, and the maturity of the ITSM services. CSI integrates principles, practices, and processes from quality management, change management, and capability improvement, attempting to improve each stage of the lifecycle and therefore improving the overall IT service, its related processes, activities, and associated technologies.

This model includes 7 improvement steps, each of which is driven by the strategic, tactical and operational goals of the first 2 stages.

The strength of ITIL lies in its wide spread reputation, therefore organizations implementing this framework are perceived trustable in ITSM, moreover, it is a mature model that provides focus on quality of IT production, outcomes, and operational processes. Because it is based on best practices, it is an effective tool in enhancing organizations processes (Anthes, 2004; Wessels & Van Loggerenberg, 2006).

On the other hand, the ITIL does have a few drawbacks. The shortage in the development of quality management services and its failure to address software development lifecycles are major limitations to ITIL. Quality issues related to operational processes are not addressed by ITIL, as they can be measured using ISO 9000 or Six sigma (Anthes, 2004; Wessels & Van Loggerenberg, 2006).

From the previous review, it is vigilant that ITIL is a well-designed framework that can be implemented by any organization that delivers services to customers, where these services are enhanced, reliant or use IT. The IT factor in such businesses is used to enhance performance, and create customer satisfaction. The processes are defined, systematic and are organized in an structured life cycle that helps to create alignment between IT and the business goals. Basically, ITIL targets the ITSM aspects of an organization therefore, not being proper to assess or manage other aspects such as security or IT value delivery where they are not in the flow of IT service management.

3. Val IT v3:

Val IT is a framework published by ITGI, which is a very comprehensive and reliable framework that enables the creation of business value from IT-enabled investments (Val IT, 2008). The Val IT framework is aligned with COBIT and ISO frameworks, and it integrates a set of practical and proven governance principles, processes, practices, and guidelines that are key management practices helping executives to optimize their realization of IT value. Val IT supports enterprises' goals of creating optimal value from IT-enabled investments and by cutting down costs while keeping risks manageable, in a measurable form to ensure effective value management and proper measurement indicators of performance (Val IT, 2008).

COBIT framework concentrates on providing good practices for how to use ITG effectively, to create value; on the other hand, Val IT, sets good practices for the outcomes by providing the enterprises with structures used to measure, monitor, and perceive the created value of IT for business needs. Therefore, Val IT and COBIT are complements from a financial and business perspective (Val IT, 2008).

Val IT describes the essential processes that should exist in an organization if it was to reach optimal value from IT investments. Key processes and practices in Val IT focus on three main domains:

- Value Governance.
- Portfolio Management.
- Investment management.

A brief description of each domain is given as follows:

- **Value Governance:**

This domain ensures that value management processes are integrated in the enterprise to guarantee optimal value from its IT-enabled investments. This goal is achieved by establishing a proper framework for value management that interleaves with all aspects of the enterprises overall CG. Moreover, the domain provides strategic direction for proper investment decisions. Further, it also provides direction to managing portfolios that support new investments, IT services, assets and other resources. In addition to that, the domain helps to

improve value management continually to achieve the organizational business goals and expectations from IT investments (Val IT,2008; Michael et. al., 2008; ISACA,2009b).

- **Portfolio Management domain:**

The aim of the portfolio management domain, is to ensure optimal value of the organizations' portfolio management of IT investments. This is achieved by ensuring that resource profiles are established and properly managed, investments thresholds are defined, new investments are properly evaluated, prioritized and selected for the well-being of the organization. Moreover, this domain also ensures the effective management of the overall investment profile for optimal value delivery. Finally, it also ensures that portfolio performance is well managed and the reporting process is effective. (Val IT,2008; Michael et. al., 2008; ISACA,2009b; Mihai, 2010).

- **The investment management domain:**

Investment management attempts to ensure that enterprises individual IT-enabled investments contribute positively to the overall value delivery of the organization to its optimal level. Investment Management domain helps organizations to clearly identify the business requirements, create a clear image of candidate investment programs. Analyze alternative implementations for these investment programs. In addition, the domain helps in individually studying each program, document it, and maintain necessary details of it in a business case through an economical life cycle of this investment program. Further, it ensures accountability and ownership to ensure benefit realization. Finally, it ensures that the performance of each program is well reported and monitored. Figure (50) demonstrates the three domains with the associated processes. (Val IT,2008; Michael et. al., 2008; ISACA,2009b).

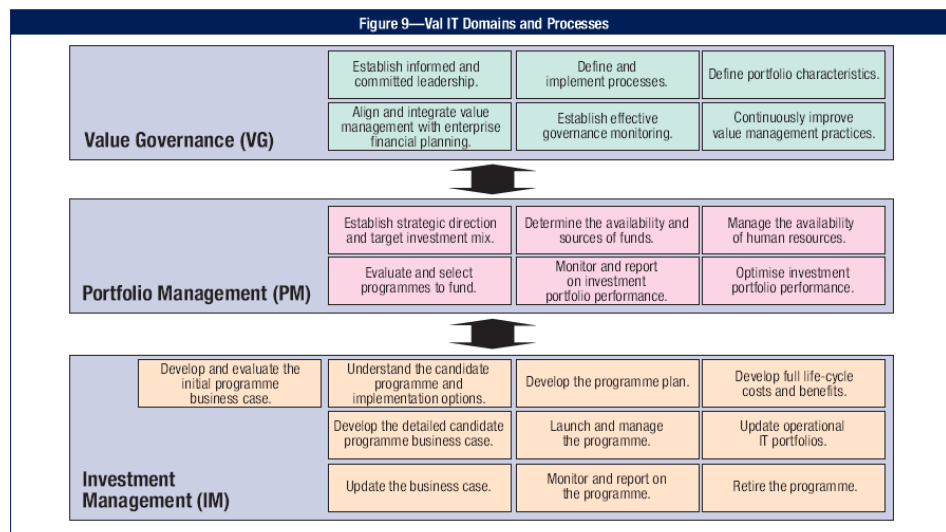


Figure 50: Demonstrates the three domains with the associated processes.(Val IT, 2008)

Boards and executive management need to know how effective their enterprises are creating value and what their competitors might be doing to create value, they also need to know where they are from their competitors. Moreover, executives need to realize proven good practices in value creation and to what extent are they implementing such practices. Further, information regarding how well the organization is doing in creating value and implementing practices is essential. Executives also need to be able to identify what they need to do to reach the proposed level of value creation especially in terms of investments in business change involving IT. To highlight these aspects, the Val IT maturity levels were designed to identify the organizations current position and possible future state. Similar to the maturity model used in the COBIT framework, the model is based on a 5 level scale from (0-not existent) to (5-optimized). The Val IT maturity models help management to identify where the organization is today, and where it wants to be tomorrow (Buckby et. al., 2005; Val IT,2008; Michael et. al., 2008; ISACA,2009b).

By carefully examining this framework, it is apparent that the framework is beneficial to be implemented in organizations to realize IT value delivery via proper value management. The framework uses value management effectively to measure the outcomes of valuable IT-enabled investments. With COBIT giving the means of creating value, and Val IT giving the outcomes, a more holistic ITG framework can be implemented in organizations to ensure optimal value creation.

4. ISO 38500:2008

ISO 38500:2008 puts in place a set of standards of higher level for management and executive boards for effective governance of IT. The mission of this framework is to allow organizations to fulfill their legal, regulatory, and ethical uses of IT.

ISO/IEC 38500 is appropriate for all organizational sizes, including private and public, governmental for profit and not for profit organizations regardless of its strategy, purpose, structure, or type.

ISO 38500 prompts effective and efficient use of IT in all organizations by assuring stakeholder trust and value delivery via corporate ITG. Moreover, it keeps management and executives informed of the level of governance implemented in the organization, therefore, providing a basis for evaluating effectiveness and performance.

Its standards are based on six key areas: responsibilities, strategy, acquisition, performance, conformance, and human behavior. A brief description of each of the six principles is given as follows (ISO/IEC 38500:2008; Feltus, 2009; Gheorghe, 2010;):

1. **Responsibility:** the executives and board members need to understand their roles in support, demand, and supply of IT in the organization.
2. **Strategy:** the IT strategic plans need to be set properly to support the business needs therefore, being aligned with the business strategy.
3. **Acquisition:** IT acquisitions should be fulfilled by balancing costs, benefits, opportunities, and risks on the short and long run of an organization.
4. **Performance:** ensures that IT is meeting its expectations, and is aligned with the business requirements.
5. **Conformance:** ensuring that IT complies with legislations and regulations whether internal , external or international.

6. **Human Behavior:** IT policies, processes, and principles should maintain the needs of all people involved in the process.

The standard has set very clear directions for management to ensure effective ITG implementations in organizations, the three focus directions are: Evaluating, Directing, and Monitoring.

ISO 38500 has also clarified the approach which should be followed to implement effective ITG in a very simple, systematic manner.

Figure (52) demonstrates the components and overall framework of the ISO 38500:2008 as discussed above.

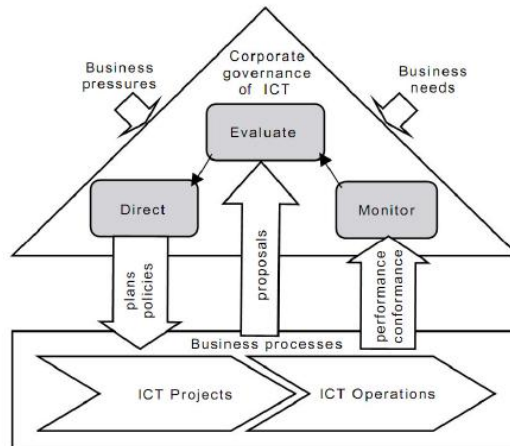


Figure 51: ISO 38500:2008 Governance of IT framework (ISO/IEC38500:2008).

5. Assessing ITG performance Matrix (Weill & Ross, 2005):

According to Weill and Ross (2005), there is not a single best formula for governing IT, however, ITG doesn't happen accidentally. Top performers carefully and thoroughly design governance.

The effectiveness of enterprises' ITG can be assessed by evaluating how well it enables IT to deliver on four objectives:

- Cost effectiveness.
- Assets utilization.
- Business growth
- Business flexibility.

In their research Weill and Ross (2005), the authors weighed each factor according to its relative importance to each enterprise. This "ITG performance assessment tool" was used by the authors in their study that compromised 256 enterprises in (2001/2002) in the USA, Europe, and Asia/Pacific region on how large enterprises across a wide range of industries in both the profit and not-for-profit sectors govern IT.

Using this tool on the indicated sample population, the authors found that high ITG performance correlated with other measures of success such as achieving profits 20% higher than those with ineffective ITG performance. Moreover, these high performers also achieved higher Return on Equity (ROE) and growth in market capitalization (Weill & Ross, 2005).

Therefore, the tool that Weill & Ross (2005) have developed can be used as a simple tool to measure how successful enterprises govern IT.

The matrix used is very simple, illustrative, and direct and can be used as an initial self-assessment tool to rate effectiveness of ITG in an organization. In their research, they have not mentioned a scale for what is considered a good level of ITG performance. Figure (53) displays the ITG performance assessment matrix developed by Weill and Ross (2005).

	1 QUESTION: How important are the following outcomes of your IT governance? 1 (not important) to 5 (very important)	2 QUESTION: How successfully does your IT governance influence these outcomes? 1 (not successful) to 5 (very successful)		
a. Cost-effective use of IT	<input type="checkbox"/>	×	<input type="checkbox"/>	= <input type="checkbox"/>
b. Effective use of IT for growth	<input type="checkbox"/>	×	<input type="checkbox"/>	= <input type="checkbox"/>
c. Effective use of IT for asset utilization	<input type="checkbox"/>	×	<input type="checkbox"/>	= <input type="checkbox"/>
d. Effective use of IT for business flexibility	<input type="checkbox"/>	×	<input type="checkbox"/>	= <input type="checkbox"/>
Importance Total = <input type="checkbox"/>			Total = <input type="checkbox"/>	
3 CALCULATE GOVERNANCE PERFORMANCE*: $\frac{\text{Total}}{\text{Importance Total}} \times 20 = \text{$				

* The formula's numerator represents a total score that increases when either or both of the following are true: (1) the objective is important, and (2) the objective is achieved. To make sure the overall performance scoring is weighted toward the actual achievement of objectives, we divide by the "total importance" score. The multiplier of 20 is applied simply to adjust the rating scale so that the highest achievable performance score is 100.

Figure 52: displays the ITG performance assessment matrix developed by (Weill, and Ross, 2005).

6 Other Frameworks:

The COBIT, Val IT, ISO 38500:2008 consider ITG as an overall framework considering different aspects of IT in the organization as seen in the section devoted for each framework. In general, they concentrate on the business-oriented aspect of IT, ensuring value creation for the good of the business. Integrating COBIT and Val IT, makes a good combination of strategic fitness and value creation via IT enabled investments, whereas, ISO 38500 attempts to deliver a framework for Governance over IT. On the other hand, the frameworks do lack other important aspects of IT that implicitly or explicitly affects ITG in organizations. Such factors include, organizational culture, IT Security, Information security, Project management, which all have an effect in achieving overall value creation of organizations. These frameworks are complements to the main ITG frameworks and help to ensure a holistic coverage of all IT aspects in the organization which is like blood in vines reaching every part of the organizations body.

With the release of COBIT 5, all these areas have been integrated in a all-in one framework that helps to cover all essential ITG areas in any organization. However, in some cases some organizations may choose to focus on one ITG area that is of significant importance to it rather than on the whole process. Therefore, the organization may choose the appropriate framework to implement in this case according their business needs and goals. A brief summary of some ITG area focused frameworks are summarized in table(26).

Table 26: Demonstrates a variety of frameworks covering different ITG areas.

Framework	Purpose or mission	Publication Organization & date	Domain/area of focus	Objectives	Resources
CMMI (Capability Maturity Model Integration)	A process improvement approach which provides orgs with the essential elements of effective processes that ultimately improve organizations performance.	Software Engineering Institute (SEI) V1 published in 1993	<ul style="list-style-type: none"> – Basically software improvement programs – Overall product and process development 	<ul style="list-style-type: none"> – Serve as a framework for organizations' software process improvement programs. – Serve as a basis for software organizations to be evaluated by their prospective customers. – It can be used to guide process improvement across a project. Division or the entire organization. – It can be used in three different areas: (1) Product and service development; (2)service establishment, management and delivery; (3)product and service acquisition. 	(SEI,2010) (Michael, et.al, 2006) (Samuel,2010) SEI,2010)
ISO/IEC2700: series including (ISO/IEC27001, ISO/IEC 27002)	Its mission is to make available information to parties responsible for implementing information security in enterprises. It is a set of best practices for the creation and monitoring of security standard and management practices in an organization to improve reliability of information security.	By ISO and IEC in 2000 and updated in 2005	Information Security	<ul style="list-style-type: none"> – Provides essential information to parties responsible of implementing ITSM – Develops and maintains security standards to improve reliability on Information security in inter-organizational relationships. – Includes risk management. – Organizations can implement relevant controls other than the need to implement all the standards. – It includes best practices on Information security policies, assignment of responsibilities for information security. – Problem escalation – Business continuity management. – covers all types of organizations (e.g. commercial enterprises, government agencies, not-for profit organizations). – use within organizations as a way to ensure that security risks are cost effectively managed; – use within organizations to ensure compliance with laws and regulations; – use by the management of organizations to determine the status of information security management activities; – use by the internal and external auditors of 	(ITGI, OGC, 2008) (Yeates, 2006) (ISO,2005) LRQA,2006) Michael,et.al.,2006)

Framework	Purpose or mission	Publication Organization & date	Domain/area of focus	Objectives	Resources
				<p>organizations to determine the degree of compliance with the policies, directives and standards adopted by an organization;</p> <ul style="list-style-type: none"> – use by organizations to provide relevant information about information security policies, directives, standards and procedures to trading partners and other organizations with whom they interact for operational or commercial reasons; – implementation of business-enabling information security; 	
BMIS (Business Model for Information Security)	A holistic and business-oriented approach to managing IT security, and highlights how IT security is an important aspect for business management. Used to create a balance between protection and business to help in creatively re-evaluating the organizations IS investments	Created by ISACA and ITGI (2009)	Information security, privacy Linkages to risk Physical security compliance	<ul style="list-style-type: none"> – Maximize reputation and brand – Increase awareness of security culture. – Provide effective risk communication across the enterprise on Information Security. – Provide ROI. – Reduce information security exposure. – Is applicable regardless of size or information security framework level and is independent of any technology used. 	(ISACA,2009c) (ITGI,2009c)

Appendix (C): Main Survey and Case Study Questions

C1: Main Survey....

A Research Case Study ITG practices in an Educational Context

Dear Sir/Madam:

I am pleased to invite you to take part in this study. I am conducting this survey as part of my MSc in IT Management at the British University in Dubai.

The purpose of this study is to build an understanding of the level of Information Technology Governance (ITG) practices and implementations in the UAE private educational sector. This will help in pin pointing the current status of IT contribution to the success of your business, and to benchmark ITG practices with international practices.

IT Governance (ITG) is defined as the responsibility of the board of directors and executive management in ensuring that the school's Information Technology sustains and supports and harmonizes with the school's business strategies and objectives.

*Please also keep in mind that the abbreviation **CIO** is used in the survey to represent any employee in school who is responsible for directing the school's information Technology services, communications, and all aspects of IT in school. Schools can have different names for this position such as: IT Manager, School Deputy/IT or any other used terminologies.*

Your participation in this survey is essential for the success of this study.

Kindly fill in the following survey about IT Governance in Private educational schools which is a part of a Research study in the field of IT Governance.

Kindly make sure to fill in ALL the question. Please ensure that the survey is answered by an Executive member in a decision making position, i.e. (Principal or School Director) to ensure that all answers cover all aspects including strategic, academic, financial and IT perspectives.

The researcher thereby, adheres that any provided information will remain top confidential and only be used for research purposes. No information will be given out to any third party and will be discarded upon completion of study. School names or demographics will not be used. Where needed, schools will be pointed out in the form of letters (A, B, C....etc).

Participating schools are very welcome to receive comments or recommendations on their level of IT implementation and best ways to improve it according to the findings and results of the study. Moreover, interested schools may also see where they stand in regards to other schools in the same sector.

This research is not to evaluate the efficiency or professionalism of school IT implementations, it is to understand the ITG best practices in the private educational sector in the UAE.

Thank you for your contribution.

Your contribution is of utmost value and importance.

Regards

The researcher

Please answer **ALL** the following questions, please **do not** leave any question empty.
Make sure you save the form after you have completed it.

Section 1 : Demographics

School Name:

[Click here to enter text.](#)

Emirates:

[Click here to enter text.](#)

When was the school established:

[Click here to enter text.](#)

What is the approximate number of students in the school

☐ Less than 500 students ☐ 500-1000 students ☐ More than 1000

Years of experience in information system or IT area

☐ 1 year or less ☐ 1-5 yrs ☐ 6-10 yrs ☐ More than 10 yrs

What is the approximate number of Employees in your school?

☐ 500 and above

☐ 200-499

☐ 100-199

☐ 50-99

☐ Less than 50

The annual income In UAE AED for your school is:

☐ 50 Million and above.

☐ 25 Million -49 Million

☐ 10 Million- 24 Million

☐ 5 Million- 9 Million

☐ Less than 4 Million

Section 2: ITG objectives and Importance of IT:

2.1 Why do you perceive Managing and governing IT to be important? (Tick all what is applicable)

<input type="checkbox"/>	1. It helps in reducing costs, and adds value to school processes.
<input type="checkbox"/>	2. It helps in increasing the efficiency of school processes.
<input type="checkbox"/>	3. It helps in managing resources properly.
<input type="checkbox"/>	4. It helps in gaining long-term profitability.
<input type="checkbox"/>	5. Ensures Compliance with regulations or with auditing boards such as ISO, ADEC requirements, KHDA requirements and others.
<input type="checkbox"/>	6. Is essential in : reaching Customer satisfaction, competition with other schools , meeting business needs.
<input type="checkbox"/>	7. Has an important role in Decision making,, prioritization, investments, better IT management oversight, accountability.
<input type="checkbox"/>	8. IT has an important role in speeding processes, creating innovation and school growth.
<input type="checkbox"/>	9. IT supports the Quality of service, service levels, repeatability, and performance.
<input type="checkbox"/>	10. None of the above
<input type="checkbox"/>	11. Others: Please specify:
Click here to enter text.	

2-2. Thinking about your overall business strategy or vision, how important do you consider IT to be to the successful delivery of your strategy or vision?

<input type="checkbox"/> Very important	<input type="checkbox"/> Important	<input type="checkbox"/> Somewhat important	<input type="checkbox"/> Not important	<input type="checkbox"/> Not important at all
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2-3. Rate the importance of the role IT plays in relation to the innovation, efficiency, and effectiveness of your school.

innovation	<input type="checkbox"/> Very important	<input type="checkbox"/> Important	<input type="checkbox"/> Somewhat important	<input type="checkbox"/> Not important	<input type="checkbox"/> Not important at all
Efficiency	<input type="checkbox"/> Very important	<input type="checkbox"/> Important	<input type="checkbox"/> Somewhat important	<input type="checkbox"/> Not important	<input type="checkbox"/> Not important at all
Effectiveness	<input type="checkbox"/> Very important	<input type="checkbox"/> Important	<input type="checkbox"/> Somewhat important	<input type="checkbox"/> Not important	<input type="checkbox"/> Not important at all

2-4 To what extent does your IT department or staff inform the school about potential business opportunities enabled by new technologies?

<input type="checkbox"/> Great Extent	<input type="checkbox"/> Significant extent	<input type="checkbox"/> Some extent	<input type="checkbox"/> Very limited extent	<input type="checkbox"/> No extent
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2-5. Which statements relates most closely to the reasons that might be the drivers or purpose of managing and governing IT in your school?
(please choose all what is applicable)

<input type="checkbox"/>	It is a requirement by external regulations such as ISO, ADEC, KHDA...etc
<input type="checkbox"/>	IT management is needed to ensure the school's strategic business plans and IT strategic plans work in the same direction to meet the business goals.
<input type="checkbox"/>	Proper management of IT allows efficient use and management of IT resources available in school.
<input type="checkbox"/>	Good management and Governance of IT allows the school to have proper risk management especially over IT risks such as data loss, privacy, hackers,etc.
<input type="checkbox"/>	Effective IT governance and management allows the school to properly measure and control the performance of IT functions and operations throughout the school.
<input type="checkbox"/>	Managing and governing IT is needed to deliver value through IT.
<input type="checkbox"/>	It is a requirement or a demand of parents and other stakeholders therefore help in gaining trust and reputation
<input type="checkbox"/>	Creates differentiation and competitive advantage over other schools.
<input type="checkbox"/>	It is a way of assuring quality and excellence in all aspects of the school's processes and functions
<input type="checkbox"/>	IT management and governance is essential to gain accreditations and certifications related the quality of IT implementations of schools as a source of good reputation and more certifications.
<input type="checkbox"/>	IT Management and governance is essential for reducing costs and increasing profits.
<input type="checkbox"/>	Others If others, please mention :
	Click here to enter text.

3.) IT performance

3.1 To what extent would you agree or disagree that IT investments have created value for your school?

<input type="checkbox"/> Strongly agree	<input type="checkbox"/> Agree	<input type="checkbox"/> disagree	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Neither
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3.1.1 How do you measure the returned value of IT investments?

<input type="checkbox"/> We use more advanced forms such as KPI's, BSC	<input type="checkbox"/> We use traditional methods(profit loss and gain)	<input type="checkbox"/> We have other forms of measurements	<input type="checkbox"/> We do not know how IT value is measured	<input type="checkbox"/> We have no measurements in place
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3.2. Are there any barriers that are preventing your school from realizing the full value from IT investments? (Please choose all what is applicable).	
<input type="checkbox"/>	Lack of skill base in making IT related decisions by Executive management or IT Management.
<input type="checkbox"/>	No clear definition of roles and responsibilities regarding IT are put in place.
<input type="checkbox"/>	No clear policies and procedures regarding IT are in place yet.
<input type="checkbox"/>	Fear of and resistant to change into a more technology based environment.
<input type="checkbox"/>	Executives and other decision makers do not have of the time to consider IT related aspects or don't find it important.
<input type="checkbox"/>	IT does not understand the business needs and vice versa.
<input type="checkbox"/>	The current existing infrastructures don't support IT.
<input type="checkbox"/>	The Culture of the school doesn't support IT or consider it an essential part. E.g(lack of involvement, resistance to change, resistance to acceptance of regulations, internal politics)
<input type="checkbox"/>	Lack of training regarding IT aspects
<input type="checkbox"/>	Budget limitations, as IT is not considered an asset of its own on the school budget, but it is part of the budget devoted for school's general facilities and supporting material.
<input type="checkbox"/>	IT is still in its early stages, therefore only being considered a supporting tool in the teaching process.
<input type="checkbox"/>	IT is only part of our taught curriculum and rarely integrates in other school aspects
<input type="checkbox"/>	IT is basically used as a school management system that has no obvious perceived value
<input type="checkbox"/>	Lack of easy solutions and Difficulties encountered in implementing applications.
<input type="checkbox"/>	Lack of management support and commitment to IT
<input type="checkbox"/>	Resistant to accept responsibility and accountability.
<input type="checkbox"/>	Lack of proper communication between involved personals from both the business and the IT sides.
<input type="checkbox"/>	None of the above applies to our school
<input type="checkbox"/>	Others If others, please mention :
	Click here to enter text.

3-3. To what extent does IT performance in your school meet your expectations?				
Outperforms our expectations	Highly performs within our expectations	Performs within our expectations	Slightly performs within our expectations	Underperforms our expectations
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3-4. Which statements relates most closely to the <u>perceived value</u> of using IT in your school? (please choose all what is applicable)	
<input type="checkbox"/>	It helps in gaining better customer/student satisfaction.
<input type="checkbox"/>	Provides in increasing staff retention and decreases turnover rates.
<input type="checkbox"/>	Increases student retention, increases student enrollments and decreases student transfer to other schools.
<input type="checkbox"/>	Creates differentiation and competitive advantage over other schools.
<input type="checkbox"/>	Allows better quality education, therefore better school reputation.
<input type="checkbox"/>	More effective school processes, knowledge sharing, data inventory, information retrieval and other operational and functional processes that allows for higher school effectiveness and performance.
<input type="checkbox"/>	Allows for more creativity, innovation and creates a learning culture in school.
<input type="checkbox"/>	Helps in competing with other schools. As it is an advantage over other schools
<input type="checkbox"/>	Reduces costs (i.e. capital, assets) and increases profit.
<input type="checkbox"/>	Helps in achieving higher compliance with external accreditation parties such as ISO, CITA, MAP, ADEC, KHDA...etc)
<input type="checkbox"/>	Others If others please specify
	Click here to enter text.

3.5 How important are the following <u>outcomes of</u> your IT governance on a scale from 1 (not important) to 5 (very important)?					
	Very Important 5	Kind of important 4	Important 3	Slightly important 2	Not important 1
1. Cost effective use of IT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Effective use of IT for growth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Effective use of IT for asset utilization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Effective use of IT for business flexibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.6 what is the <u>influence</u> of the IT governance in your business on the following measures of success on a scale from 1(not successful) to 5 (very successful)?					
	Very Successful 5	Kind of successful 4	successful 3	Slightly successful 2	Not successful 1
1. Cost effective use of IT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Effective use of IT for growth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Effective use of IT for asset utilization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Effective use of IT for business flexibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.) IT Accountability	
4-1. Who is ultimately accountable for ensuring that <i>the school's Information Technology sustains and supports the school's strategies and objectives.</i>	
<input type="checkbox"/>	Executive management
<input type="checkbox"/>	Non-IT non-executive management
<input type="checkbox"/>	CIO (Chief Information Officer)
<input type="checkbox"/>	Head of IT dept
<input type="checkbox"/>	IT officer
<input type="checkbox"/>	Other IT experts (i.e. IT subject coordinator, IT MOE supervisor, IT teachers..etc...)
<input type="checkbox"/>	Outsourced to external IT companies.
<input type="checkbox"/>	None of the above: Please mention if any other source available: Click here to enter text.

4-2. Who are the key role players of making strategic decisions regarding IT aspects in your school?	
<input type="checkbox"/>	Executive management
<input type="checkbox"/>	Non-IT non-executive management
<input type="checkbox"/>	CIO
<input type="checkbox"/>	Others: Please indicate Click here to enter text.

4-3. For each activity, indicate who is accountable of carrying out these activities within your school. (if more than one manager takes role, please choose all what is applicable)				
Activities	Executive management	Non-IT non-executive management	Non-executive management	IT expert/head /CIO
a) The identification of potential investment opportunities involving IT.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) The selection of investments involving IT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The realization of value from investments involving IT.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Providing adequate IT operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4-4. Is the CIO/IT Head of department/IT officer...etc. part of the executive team ?
☐ is part of the Executive team

☐ Is not part of the executive team

☐ We do not have a CIO in school.
4.4.1 If the answer to 4-4 is [Yes] , To whom does the CIO/IT Head of department/IT officer...etc report to?
☐ Executive management

☐ Non-IT non-executive management

☐ Head of IT dept or Other IT experts

☐ Chief accountant

☐ External IT companies or bodies such as ISO, CITA, ...ect.

☐ Does not report to anyone.

☐ Reports to another body not mentioned above.

Please specify:
[Click here to enter text.](#)
4.4.2 If the answer to 4-4 [NO]:**If the CIO/IT Head of department/IT officer...etc is not part of the executive team, why not?**
☐ The CIO is only responsible for IT functional and operational aspects in school.

☐ We prefer to maintain a small executive team

☐ IT aspects and investment decisions are made and discussed by the executive team without the existence of the CIO.

☐ The level of IT in our school is very simple and therefore, IT is not an essential in our meetings

☐ We do not believe that IT should be discussed at executive level.

☐ Other reasons for the CIO to not be part of the executive team:

Please specify
[Click here to enter text.](#)
4-5 To what extent does the CIO/IT Head of department/IT officer...etc have influence on the executive decisions in school:
☐ Very strong influence

☐ strong influence

☐ Moderated influence

☐ poor influence

☐ No influence at all
5- Effectiveness of IT Governance**5-1. How frequently is IT included on your school's management agenda?**
☐ All the time

☐ Most of the time

☐ Routinely

☐ sometimes (Case by case)

☐ Never
5-2 What is the typical focus of board discussions about IT?

<input type="checkbox"/>	Improving IT operational performance
<input type="checkbox"/>	Role of IT in future business success
<input type="checkbox"/>	Contribution of IT to innovative practices
<input type="checkbox"/>	Analyzing IT-related risks
<input type="checkbox"/>	Reducing the cost of IT to the enterprise
<input type="checkbox"/>	Do not know
<input type="checkbox"/>	Others If "others", please mention: Click here to enter text.

5-3. To what extent does your school establish and maintain a strong link between business strategy and IT strategy?

<input type="checkbox"/> Very strong links	<input type="checkbox"/> strong links	<input type="checkbox"/> Moderated links	<input type="checkbox"/> poor links	<input type="checkbox"/> No links at all
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5.3.1 If any links between your schools' business and IT strategy, specify how does your school establish these links between IT and Business strategy? (please select all what is applicable)

<input type="checkbox"/>	Involving management in IT decisions
<input type="checkbox"/>	Regular leadership meetings on IT
<input type="checkbox"/>	Having an IT strategy committee in school
<input type="checkbox"/>	Regular external reviews/consulting such as ISO, COBIT, ITIL
<input type="checkbox"/>	Involving CIO/IT Head of department/IT officer...etc in management meetings and decisions.
<input type="checkbox"/>	None of the above.
<input type="checkbox"/>	Other forms not specified above... Please mention them.. Click here to enter text.

5.4 Where would your school go for guidance, advice and solutions regarding IT strategic decisions that might affect the schools overall effectiveness and decisions?

<input type="checkbox"/>	External advisors.
<input type="checkbox"/>	IT manager/Head/CIO/ IT team in school
<input type="checkbox"/>	Legal/Audit parties
<input type="checkbox"/>	Accounting/Finance department
<input type="checkbox"/>	Parent company/Group

<input type="checkbox"/>	MOE, ADEC, KHDA
<input type="checkbox"/>	Have no Idea
<input type="checkbox"/>	Other If "others", please specify
	Click here to enter text.

5-6. In your school, to what extent are the IT strategic decisions part of the overall school governance arrangements?

<input type="checkbox"/> It is strongly integrated as a part of the overall school governance arrangements	<input type="checkbox"/> It is part of most of the schools governance arrangements	<input type="checkbox"/> It is sometimes part of the schools governance arrangements	<input type="checkbox"/> It is rarely part of the schools governance arrangements	<input type="checkbox"/> It is an effort distinct /isolated from overall school governance
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6. IT Maturity Level

6.1 Which of the following statements is closest to the perception *of the responsibility of the board of directors and executive management in ensuring that the school's Information Technology sustains and supports the school's strategies and objectives (IT Governance).*

<input type="checkbox"/>	We do not consider IT strategic decisions and involvement (IT Governance) as an issue for our school.
<input type="checkbox"/>	We understand IT strategic decisions and involvement (IT Governance) is an issue but are just starting to assess what needs to be done.
<input type="checkbox"/>	We are well aware that IT strategic decisions and involvement (IT Governance) is important and we have a number of ad hoc measures in place.
<input type="checkbox"/>	We have well defined IT strategic decisions and involvement (IT Governance) measures and processes in place.
<input type="checkbox"/>	We have well-functioning IT governance processes and a performance measuring system in place.
<input type="checkbox"/>	Our IT governance processes are continuously optimized based on performance measuring.

7. ITG frameworks

7.1 What formal accredited frameworks are you using to control and monitor IT Governance practices in your school

<input type="checkbox"/>	COBIT
<input type="checkbox"/>	ITIL
<input type="checkbox"/>	VAL IT

<input type="checkbox"/>	ISO (27001, or 27002 or 38500)
<input type="checkbox"/>	We have no Idea about these frameworks, therefore we are not using them.
<input type="checkbox"/>	None
<input type="checkbox"/>	Others If "others" please specify. Click here to enter text.

8. ITG Enablers

What enablers that if available, will help in achieving a higher level of ITG performance?

<input type="checkbox"/>	Management awareness, support and commitment
<input type="checkbox"/>	Stakeholder awareness and support
<input type="checkbox"/>	The existence of CIO/other ITG structures as part of management team
<input type="checkbox"/>	External partners and ITG experts/consultants
<input type="checkbox"/>	Well established links between IT and Business
<input type="checkbox"/>	Clear ITG Policies and Processes in Place
<input type="checkbox"/>	IT/Business well aligned
<input type="checkbox"/>	Well defined roles and responsibilities.
<input type="checkbox"/>	IT prioritizes well
<input type="checkbox"/>	IT understands the business
<input type="checkbox"/>	IT is part of the schools overall strategy and governance.
<input type="checkbox"/>	School culture supports IT strongly
<input type="checkbox"/>	IT demonstrates leadership
<input type="checkbox"/>	Good IT/business value metrics
<input type="checkbox"/>	Good ITG training
<input type="checkbox"/>	Availability of high budgets and Financial support

Thank you for your valuable information
We do appreciate the time you gave in contributing to the study.

C.2 Case Study Questions...

The Practicality and Applicability of IT Governance in For Profit -Private Educational Sectors and Its Role In Achieving Competitive Advantage.

Case Studies

School Name:	
Interviewee:	
Position:	
Date:	

1. How vital is IT to your school?

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2. Is your Business strategy aligned with the schools IT strategy? How?

3. Do you think there is a need for effective ITG in your school to gain value and remain competitive among other schools? Why?

4. What is the most important driver for implementing ITG in your school?

5. What are the current ITG practices (not frameworks) that you have implemented in your school? (i.e. risk assessment, IT alignment, value creation, performance measurement...etc).

6. In your opinion, why do you think the school's ITG maturity level scored this high/low?

7. What is the most important Enabler/s for implementing ITG in your school(helps to make it successful)? (CSFs)

8. What are the most important barriers you face in implementing ITG in your school?(kindly discuss why you consider them to be inhibitors)

9. How well do you perceive the created value of IT in your school? And what are the different forms of value you think IT and ITG return? How do you measure it?

10. Have you implemented any ITG frameworks/standards/best practices in your school? Or even if not, do you plan to implement any in the future?(internal, external or on regular basis)

Appendix (D): Case Study Data Categorization:

The maturity level of the five schools selected in the case study were captured using the main survey based on the capability SEI's model that is adapted by ITGI for its COBIT framework as an ITG maturity model. The model is based on a scale of 6 levels starting from (0 Non-existent) to (5 Optimized)(see Appendix (A): COBIT section for more details of ITG maturity levels).

The five categories are as follows:

1. **Category 1:** Top management awareness, and recognition of the importance of ITG(this includes the perception of the vitality of IT, the importance of ITG in creating value)
2. **Category 2:** ITG implementations and best practices in the school which include (The current practices used, Business/IT alignment, used frameworks).
3. **Category 3:** The factors affecting ITG effectiveness (Enablers, inhibitors, Drivers).
4. **Category 4:** ITG maturity level and ITG performance rates in each school.
5. **Category 5:** The effect of ITG on creating competitive advantage and creating value (Perceived value created by IT and Effective ITG).

For each of the five categories, a matrix was developed to categorize and summarize the data collected from all five case studies regarding each category to allow easier comparisons (See Appendix D) to view all the matrixes of the five categories and how the data was grouped.

Category no1: Awareness of ITG concepts, and recognition of the importance of ITG in creating value.

Table 27: (Category 1): 1.a) Vitality of IT in For-Profit Private Schools

Category no1: Awareness of ITG concepts, and recognition of the importance of ITG in creating value.			1.a) Vitality of IT in For-Profit Private Schools	
School "A"	School "B"	School "C"	School "D"	School "E"
Very Vital	Very Vital	Somewhat important	Very Vital	Somewhat important
<ul style="list-style-type: none"> IT helps in achieving a high level of competence IT part of schools overall governance. Part of all aspects of the school (operational and functional) Part of management's improvements plans. CIO is a member of the management team and attends meetings. Highly on agenda Integrated into all school processes. Well communication established between business and IT units. CIO reports directly to school 	<ul style="list-style-type: none"> IT is a strategic partner of the school's business strategy. There is good awareness of IT value creation . Highly on the schools management agenda. Part of overall governance. IT brings distinction and differentiation. The school uses external partners and advisors with the ICT center for best IT investments. High management commitment and support of IT. IT resources available IT Center established to provide operational, 	<ul style="list-style-type: none"> Important in delivering overall business strategy. Somewhat important in innovation. IT is an enabler to teaching and learning basically. IT is basically effective at functional and operational level. Projects are initiated by the IT department, and approved by the Principal and Accountant. IT quality audits are internally done. IT head of Dept. is not part of the management team. IT is on managements agenda case by case. 	<ul style="list-style-type: none"> IT is a strategic partner. One of managements top concerns and commitments. The school has a devoted IT strategic steering committee at management level. IT /Business are well aligned. IT/Business strategic plans work in the same direction. IT/Business understand each other and communicate effectively. IT is always on boards agenda. IT investments are given high priority. IT has an innovate role in school. 	<ul style="list-style-type: none"> Somewhat important to deliver school strategy-indirect implications. Basically seen as an academic enabler to raise student performance and satisfaction (enhance teaching and learning). Supporting administrative tasks and chores (functional and operational). IT head is not part of the executive board. IT is on management agenda when needed (case-by case). IT aspects discussed like other facilities and services- (IT doesn't prioritize well). IT HOD informs the management about IT value creation (intangible-no

Category no1: Awareness of ITG concepts, and recognition of the importance of ITG in creating value.			1.a) Vitality of IT in For-Profit Private Schools	
School "A"	School "B"	School "C"	School "D"	School "E"
<p>Principal and board.</p> <ul style="list-style-type: none"> Delegations and roles clearly defined. 	<p>functional and training needs of the school.</p>	<ul style="list-style-type: none"> IT Head reports to facility and services department not directly to management. Very simple basic Risk control not at management level. Poor links between IT and Business. IT is not part of overall school governance. No clear roles and delegations regarding IT aspects on management level. 	<ul style="list-style-type: none"> Adequate IT resources are available to support the business. 	<p>evidences available).</p> <ul style="list-style-type: none"> Implicit realization of IT value by accountants, as part of overall school facilities and features. Management is not involved in IT strategic plan setting, as it is just like any other subject plan in other departments. Only general IT projects that clearly bring value to school are given investment priority. Relying on external parties such as the MOE to get advice regarding improvement in IS and IT systems.

Table 28: (Category 1): 1.b) Importance of ITG in creating Competitive advantage and adding value to the business as perceived by schools senior Management.

Category no1: Awareness of ITG concepts, and recognition of the importance of ITG in creating value.			1.b) Importance of ITG in creating Competitive advantage and adding value to the business as perceived by schools senior Management.	
School "A"	School "B"	School "C"	School "D"	School "E"
The importance of ITG is highly recognized	The significance of ITG is kind of recognized	The significance of ITG is kind of recognized- intuitive	The importance of ITG is highly recognized	The significance of ITG is kind of recognized- intuitive
<ul style="list-style-type: none"> • Attracts more customers • Wider reach of customers via different communication channels that is well managed and controlled. • Higher ROI and profits. • Centralized systems allow better management of school assets and IT resources. • Reduced turnover, increased enrollments and retention rates. • Increased service quality. 	<ul style="list-style-type: none"> • ITG is needed to create value and competitive advantage. • Managing and governing of IT assets and resources. • Reducing operational and functional costs. • Adding value to the business indirectly. • Increasing efficiency and effectiveness of overall school processes. • Increasing profits and ROI. • Increasing school's reputation and trust of stakeholders via good management of high IT investments. • Needed to ensure compliance with 	<ul style="list-style-type: none"> • Increases efficiency of school processes. • Helps to ensure compliance with regulations and auditing boards. • Gaining customer and stakeholder satisfaction. • Competing with other schools. • Meeting stakeholder's demands. • Improving services • Ensuring control over all IT services and resources. 	<ul style="list-style-type: none"> • Important to achieve competitive advantage and differentiation among other schools. • Cost reduction of processes and operations • Gaining long term profitability. • ITG increases efficiency and overall school effectiveness. • Well management and control of resources. • Well management and control of risks. • Helps in putting processes in place. • Efficiency and controlling IT functions and operations. (e.g. 	<ul style="list-style-type: none"> • Increases competitive advantage and differentiation. • Stakeholders request to have more control on IT investments. • More customer satisfaction, reputation and trust. • Increasing efficiency regarding teaching, learning, operational and functional aspects. • Higher IT functionality. • Better ROI on IT investments. • Overall school effectiveness.

Category no1: Awareness of ITG concepts, and recognition of the importance of ITG in creating value.			1.b) Importance of ITG in creating Competitive advantage and adding value to the business as perceived by schools senior Management.	
School "A"	School "B"	School "C"	School "D"	School "E"
<ul style="list-style-type: none"> • Better knowledge management and sharing. • Increases innovation and creativity. • Reducing costs and financial errors and better tracking and control over capital and investments. • Increased efficiency and control of IT functional and operational aspects. • Decreases IT risks and brings in better investment opportunities. • Better control on IT costs and investments. • Helps in ensuring IT and business are well aligned. • Increased control on standards, security 	<p>regulations and standards of educational authorities and auditing boards such as KHDA, ISO ...etc.</p>		<p>downtime, accessibility, reliability, error reduction, reduced data loss, security gaps...etc.)</p> <ul style="list-style-type: none"> • Clarification of accountabilities, roles and responsibilities. • Gaining stakeholder contentment and trust. • Overall school effectiveness. • Better alignment between business and IT. • Improved service quality 	

Category no1: Awareness of ITG concepts, and recognition of the importance of ITG in creating value.			1.b) Importance of ITG in creating Competitive advantage and adding value to the business as perceived by schools senior Management.	
School "A"	School "B"	School "C"	School "D"	School "E"
<p>and aspects such as compliance to standards such as ADEC, ISO, CITA and others.</p> <ul style="list-style-type: none"> Increasing overall organizational performance. 				

Category no 2: ITG implementations and practices in for profit private schools

Table 29: (Category 2): 2.1) Current ITG practices

Category no 2: ITG implementations and practices in for profit private schools			2.1) Current ITG practices	
School "A"	School "B"	School "C"	School "D"	School "E"
<p>Very good awareness of ITG,</p> <p>Good practices in place</p>	<p>Good awareness of ITG,</p> <p>Good practices in place</p>	<p>Very basic awareness (ad-hoc basis)</p> <p>Some ITG practices in place</p>	<p>Very good awareness of ITG,</p> <p>Not fully realized</p> <p>Very good practices in place</p>	<p>Little awareness of ITG, and realization of IT value.</p> <p>Very basic practices in place as ad-hoc actions.</p>
<p>Having a devoted CIO as part of the management team.</p> <p>IT is highly on management's agenda</p> <p>Clear roles and delegations defined in terms of ITG aspects.</p> <p>IT strategy is part of overall school governance and business strategy.</p> <p>Internal IT auditing committee to ensure quality of IT services.</p> <p>Allocated and controlled IT budgets and investments.</p> <p>IT investments discussed at board level.</p> <p>Well managed IT risks.</p> <p>Good links between IT and business</p> <p>IT and ITG aspects well articulated to all staff throughout the school.</p>	<p>Having an ICT center (IT strategic steering team).</p> <p>Clear roles and delegations in terms of ITM and ITG.</p> <p>Devoted meetings with boards to discuss IT.</p> <p>IT strategy supports business strategy at most of the times.</p> <p>IT quality internally monitored and controlled.</p> <p>Security and risk management well managed.</p> <p>IT investments discussed at board level .</p> <p>Well links between IT, management and business.</p> <p>IT vision is well articulated to staff.</p> <p>IT training is provided to all staff(not</p>	<p>ITG management in Ad-hoc basis.</p> <p>Some basic procedures and measurements in place.</p> <p>Traditional IT value metrics in place, no specialized metrics available.</p> <p>IT roles defined but no ITG roles or responsibilities obvious.</p> <p>Risks and ITG practices not part of management delegations.</p>	<p>IT decisions are made at executive level.</p> <p>IT/Business are well aligned.</p> <p>Roles and responsibilities are defined.</p> <p>ITG is part of CG.</p> <p>IT steering committee exists and is at management level.</p> <p>IT is always on managements agenda.</p> <p>Good board realization and commitment and support of ITG.</p> <p>IT/Business understand each other and communicate well.</p> <p>IT risks well controlled an managed.</p> <p>IT policies and procedures defined.</p> <p>ITG aspects articulated simply</p>	<p>Minimal ITG expertise at board level.</p> <p>On agenda case-by case.</p> <p>IT investments affect overall school value</p> <p>Basic awareness of IT value.</p> <p>Internal quality audits on ITG systems.</p> <p>External advisors consulted on best IT investments.</p> <p>Simple forms of risk management.</p>

Category no 2: ITG implementations and practices in for profit private schools			2.1) Current ITG practices	
School "A"	School "B"	School "C"	School "D"	School "E"
<p>Very good awareness of ITG,</p> <p>Good practices in place</p>	<p>Good awareness of ITG,</p> <p>Good practices in place</p>	<p>Very basic awareness (ad-hoc basis)</p> <p>Some ITG practices in place</p>	<p>Very good awareness of ITG,</p> <p>Not fully realized</p> <p>Very good practices in place</p>	<p>Little awareness of ITG, and realization of IT value.</p> <p>Very basic practices in place as ad-hoc actions.</p>
<p>IT policies and Procedures in place.</p>	<p>ITG),</p> <p>IT is integrated into all depts..</p> <p>Well defined policies and procedures.</p> <p>Well infrastructure to support ITM and ITG.</p> <p>Well managed IT Budget</p> <p>ICT center informs business of new opportunities.</p> <p>Traditional value measurement tools in place.</p>		<p>(implicitly) to staff.</p> <p>IT budgets and investments are well controlled and monitored.</p> <p>Management involved in setting IT strategic planes</p> <p>Basic IT value metrics in place</p>	

Table 30: (Category 2)- 2.2) Business/IT strategic Alignment

Category no 2: ITG implementations and practices in for profit private schools			2.2) Business/IT strategic Alignment	
School "A"	School "B"	School "C"	School "D"	School "E"
Highly aligned	Well aligned	Poor alignment	Highly aligned	Poor alignment
<p>IT strategy is part of the business strategy.</p> <p>IT/Business alignment and Business/IT alignment considered as much as possible.</p> <p>IT is a strategic partner.</p> <p>IT is part of the overall school improvement plans.</p> <p>Highly on agenda.</p> <p>Well established links between IT, management and business.</p> <p>Highly skilled human resources.</p> <p>Good management understanding of IT value and opportunities.</p> <p>IT management part of management team on organizational hierarchy.</p> <p>Formal value measurements in</p>	<p>Good alignment between IT and business as much as possible.</p> <p>IT supports the business needs.</p> <p>Business drives IT strategy.</p> <p>Well communication between business and IT.</p> <p>Business and IT understand each other to some extent.</p> <p>IT value metrics available in a traditional form.</p>	<p>IT is not perceived to support or deliver school strategic goals.</p> <p>Top management not involved in IT strategic decision.</p> <p>IT Head not part of management team.</p> <p>Poor linkage between business and IT.</p>	<p>Business and IT understand each other, and communicate well.</p> <p>Top management realizes the value that IT creates value for business.</p> <p>Top management gets involved in IT strategic planning.</p> <p>IT reports directly to senior management.</p> <p>Existence of IT steering committee as part of the management team.</p> <p>IT is always on management agenda.</p> <p>IT prioritizes well.</p> <p>There are traditional IT/business metrics in place.</p> <p>IT investments managed and controlled.</p> <p>Well IT architecture: IT informs</p>	<p>Minimal ITG expertise at board level.</p> <p>Only on agenda when needed (case-by case).</p> <p>IT investments affect overall school value.</p> <p>Very basic awareness of IT value and its measurements.</p> <p>Internal quality audits on IT systems and functions.</p> <p>External advisors consulted on best IT investments.</p> <p>Simple forms of risk management.</p>

Category no 2: ITG implementations and practices in for profit private schools			2.2) Business/IT strategic Alignment	
School "A"	School "B"	School "C"	School "D"	School "E"
<p>place (simple forms).</p> <p>IT prioritizes well.</p> <p>IT management reports directly to top management.</p> <p>Good IT architecture and scope: management of new emerging technology, innovation, informing business of new opportunities, managing Risks.</p> <p>ITG delegations well articulated to all staff .</p>			<p>business regarding new opportunities, well managed risks.</p> <p>ITG aspects not well articulated to staff.</p> <p>Well knowledge among IT staff regarding ITG (by experience and need)</p>	

Table 31: (Category 2)- 2.3) Used ITG Frameworks in the current settings of for profit private schools.

Category no 2: ITG implementations and practices in for profit private schools			2.3) Used ITG Frameworks in the current settings of for profit private schools.		
	School "A"	School "B"	School "C"	School "D"	School "E"
Currently implemented Formal standards and ITG practices	None	Using some of the ITIL processes (customized) but not accredited	None No idea about them	Informally using ITIL to control and monitor processes (customized) Not accredited	None
Other audits, standards or ITG practices	Internal audits Audits of educational authorities as part of overall accreditations and quality inspections (ADEC, ISO, CITA, ICDL...etc)	Internal audits by partners and ICT center. Educational authorities as part of overall quality assurance (KHDA, UK educational boards..etc).	Internally by IT dept. Standards and inspections by MOE.	IT strategic steering committee. ADEC Other educational authorities as part of the fulfillment of their standards.	Very basic as part of MOE requirements
Future plans	ITIL or ISO 38500	COBIT		COBIT Val IT	Not yet planned, still structure formulation phase.

Category no 3: Other factors influencing the implementation of effective ITG practices in the for profit private educational business sector.

Table 32: (Category 3): Factors affecting successful ITG implementations (Drivers, Enablers, Inhibitors)

Category no 3: Other factors influencing the implementation of effective ITG practices in the for profit private educational business sector.			Factors affecting successful ITG implementations(Drivers, Enablers, Inhibitors)		
	School "A"	School "B"	School "C"	School "D"	School "E"
3.1 Drivers: <i>(The reasons behind the perceived need to implement effective ITG)</i>	<p>Ensures compliance with international and national requirements regarding the use of IT and its consistency.</p> <p>To ensure better IT alignment with business.</p> <p>Better management of assets and resources.</p> <p>Reduced functional and operational costs.</p> <p>Reduced IT risks and more opportunities.</p> <p>Improves overall school effectiveness</p>	<p>Creating value via IT benefits vs. costs and high IT investments.</p> <p>Business alignment</p> <p>Risk control and management</p> <p>Compliance with standards and regulations.</p>	<p>Meeting accreditation requirement and certifications regarding IT quality.</p> <p>Good reputation and trust of stakeholders.</p> <p>Maximum use of IT resources.</p> <p>Requirement of stakeholders to ensue effective IT investments.</p> <p>Higher returns on investments.</p> <p>Risk management.</p>	<p>The need to deliver value through IT.</p> <p>Differentiation and competitive advantage.</p> <p>Compliance with legal, national and international educational authorities such as ADEC.</p> <p>Stakeholder trust, satisfaction and reputation.</p>	<p>Compliance with requirements of external regulators such as MOE, examination boards.</p> <p>Stakeholder demand.</p> <p>Gaining trust, reputation and satisfaction of stakeholders via improved performance.</p> <p>A form of gaining competitive advantage over other schools.</p>

Category no 3: Other factors influencing the implementation of effective ITG practices in the for profit private educational business sector.			Factors affecting successful ITG implementations(Drivers, Enablers, Inhibitors)		
	School "A"	School "B"	School "C"	School "D"	School "E"
	and performance. To ensure differentiation and competitive advantage.				
3.2 Enablers: <i>(The strengths(CSFs) that allow the school to implement the ITG practices as perceived by management boards)</i>	Management's support and commitment. Growing awareness and support of stakeholders. Qualified human resources.	Management support and commitment. Economy of experience "problems avoided, lessons learnt, ..etc". High qualified human resources. Use of specialized IT partners as consultants and advisors.	Realization an awareness of IT value by top management. Commitment and support of top management to IT and ITG. The existence of human resources that are knowledgeable in ITG and IT/business value creation.	Support and commitment of senior management. Well links and communication between IT and business. Having a devoted IT strategic steering committee as part of the management team.	Top management awareness, commitment and support. Well trained/high qualified H.R. in business/IT aspects. Having clear ITG principals and processes
3.3 Inhibitors/Barriers: <i>(The obstacles that impede effective ITG implementations)</i>	Budget limitations and lack of financial aid regarding technology. Lack of local existing	Financial limitations. Unavailability of precise forms of IT value measurements.	Insufficient expertise and lack of awareness regarding ITG and its effects on school business.	Lack of professional ITG training for management. Lack of involvement of stakeholders in	Lack of Business IT relationships and links. Lack of Senior management

Category no 3: Other factors influencing the implementation of effective ITG practices in the for profit private educational business sector.			Factors affecting successful ITG implementations(Drivers, Enablers, Inhibitors)		
	School "A"	School "B"	School "C"	School "D"	School "E"
	<p>IT solutions.</p> <p>High pay of IT/Business specialists and IT developers to be on site.</p> <p>Business not fully understanding business and vis-a-versa.</p>	<p>Emergence of unplanned IT projects that consume resources and affect plans.</p> <p>Resistance to accept accountability.</p>	<p>Lack of understanding between IT/Business.</p> <p>Lack of external consultation or advice regarding ITG.</p> <p>Fear of chance and resistance into more technology aspects in school. (Not accepting accountabilities and more delegations).</p> <p>Improper cultural infrastructure of school towards ITG.</p> <p>IT doesn't prioritize well.</p>	<p>ITG aspects.</p> <p>Lack of proper measurements of IT value and return on IT investments.</p> <p>Not being able to realize IT value as it can't be isolated from other facilities and services overall returned value.</p> <p>Lack of experienced HR in ITG.</p>	<p>awareness of ITG potentials.</p> <p>Lack of training regarding ITG.</p> <p>Lack of clear ITG processes and procedures.</p> <p>The absents of clear roles and responsibilities regarding ITG.</p> <p>Lack of specialized human resources that can bridge the gap between business and IT.</p>

Category no 4: ITG maturity level and ITG performance rates in each school.

Table 33: (Category 4): ITG Maturity level & overall ITG performance in for-profit private educational schools

Category no 4: ITG maturity level and ITG performance rates in each school.			ITG Maturity level & overall ITG performance in for-profit private educational schools		
	School "A"	School "B"	School "C"	School "D"	School "E"
4.1 ITG Maturity Level	4	3	1	4	1
4.2 ITG performance Rate/school <i>(According to Weill and Ross,2006: ITG performance measurement matrix). The values are benchmarked with the average of their study that was 69% on average of all organizations participating in the study)</i>	88% High	75.7% Moderate	44.3% Low	83% High	40% Low
4.3 Perceptions for why this (high/low) level was achieved by schools	Support and commitment of senior management. Top managements Believe and realization of IT strategic value. IT is a business partner. Good alignment of IT and business. Devoted CIO who is part of the management	Well defined procedures and processes. Well articulation via workshops and orientations of the role of IT. Management's commitment and support to IT.	ITG is not an issue of concern to the school. Lack of communication between IT and business. Lack of management's realization of contributions of IT to business. IT is in its initial stages not yet mature to consider ITG	Knowing who the customers are and what are their needs. Well IT/Business alignment. Very clear, in place roles and responsibilities, and accountabilities regarding ITG implementations. Effective communication	ITG concept new and there is no previous knowledge about it. Lack of awareness on IT value to business by management, business staff and IT staff. Lack of business<--> IT experts. Opting for other forms of profits such as raising fees, enhancing teaching

Category no 4: ITG maturity level and ITG performance rates in each school.			ITG Maturity level & overall ITG performance in for-profit private educational schools		
	School "A"	School "B"	School "C"	School "D"	School "E"
	team.		<p>implementations.</p> <p>Lack of ITG expertise among management and IT staff.</p> <p>Poor links between business and IT.</p> <p>Business and IT don't understand the needs of each other.</p> <p>No definitions of roles and responsibilities regarding ITG are in place yet.</p> <p>Unawareness of IT value creation</p> <p>No CIO as part of the management team.</p>	<p>between business and IT.</p> <p>Some IT/business value metrics in place although traditional.</p> <p>Moderate awareness of ITG value by experience and best practices that work.</p> <p>Limitations for not achieving higher ITG maturity levels:</p> <p>No formal ITG frameworks used.</p> <p>No high level training on ITG for managers available.</p> <p>ITG is not communicated to all staff yet.</p> <p>No formal precise IT value measurements yet in place.</p>	<p>and learning, improving facilities, and neglecting the benefits of ITG such as cost reduction, improving processes ...etc.</p> <p>The schools culture in viewing IT as a functional and operational enabler not as a strategic partner to the overall school governance.</p>

Category no 5: The effect of ITG on creating competitive advantage and creating value (Perceived value created by IT and Effective ITG).

Table 34: (Category 5)- The value created by implementing ITG practices in for profit private schools and how it is measured

Category no 5: The effect of ITG on creating competitive advantage and creating value (Perceived value created by IT and Effective ITG).			The value created by implementing ITG practices in for profit private schools and how it is measured		
	School "A"	School "B"	School "C"	School "D"	School "E"
5.1 Created Value	<p>Better communication with stakeholders and more reach to customers.</p> <p>Stakeholder satisfaction.</p> <p>Reduced staff turnover rates.</p> <p>Higher enrollments and retention rates.</p> <p>Better risk management, therefore reducing IT risks and providing more opportunities.</p> <p>Higher profits and ROI.</p> <p>Better stakeholder trust, reputation and satisfaction.</p> <p>Achieving differentiation and competitive advantage.</p>	<p>Higher ROI, ROA, and profits.</p> <p>Better customer satisfaction and trust.</p> <p>Reduced turnover rates.</p> <p>Increasing retention and enrollments.</p> <p>Cost reduction on capital assets.</p> <p>Gaining customer trust and reputation due to better processes and effectiveness.</p>	<p>IT value not that evident yet.</p> <p>Customer satisfaction, reputation and trust of stakeholders.</p> <p>Complying with external accreditation bodies to prove process effectiveness and efficiency.</p> <p>Indirect impacts on increasing profit.</p> <p>Attracting customers</p> <p>ITG is effective in asset utilization.</p>	<p>Strongly agrees that IT creates value</p> <p>IT performs within management's expectations.</p> <p>Overall school effectiveness via</p> <p>Increasing customer satisfaction.</p> <p>Reduced complains regarding IT systems.</p> <p>Decreasing staff turnover.</p> <p>Increasing enrollments, and retention rates.</p> <p>Better KM, therefore better control on quality when staff leave (knowledge</p>	<p>IT Value perceived at the operational and functional level.</p> <p>Not satisfactory on strategic level in adding business value.</p> <p>Customer satisfaction and trust.</p> <p>Increased enrollment as it attracts more customers.</p> <p>Complying with accreditation bodies with the lowest costs of modifications.</p> <p>Differentiation over other schools.</p> <p>High ROI.</p>

Category no 5: The effect of ITG on creating competitive advantage and creating value (Perceived value created by IT and Effective ITG).				The value created by implementing ITG practices in for profit private schools and how it is measured	
	School "A"	School "B"	School "C"	School "D"	School "E"
				repository). Better reputation and trust of shareholders and stakeholders on their investments. Satisfaction and outstanding performance on quality inspections. Well performance in meeting Educational authorities standards. Creating an innovative and creative culture. Reducing service, functional and operational costs. All the above results in competitive advantage and differentiation over competing schools.	
5.2 Used IT Value Metrics	No formal metrics of IT value yet, only traditional ways are available. IT value not measured in isolation of other facilities	Implicit measures as mentioned above, no formal measures in place.	No formal metrics available, only traditional methods used to indirectly measure created value via IT.	General use of KPIs Traditional forms of measuring performance via profits, satisfaction...etc.	No IT value metrics used. Traditional methods used only.

Category no 5: The effect of ITG on creating competitive advantage and creating value (Perceived value created by IT and Effective ITG).				The value created by implementing ITG practices in for profit private schools and how it is measured	
	School "A"	School "B"	School "C"	School "D"	School "E"
	<p>and services, although it has its own budget and investments.</p> <p>Quality is measured internally or by external auditors as part of the fulfillment of other standards ,i.e. ADEC, CITA, ISO...etc</p>			No formal methods in place yet.	

List of References

A

1. ADEC,(2010); *General information and statistics*, Accessed online via <http://www.adec.ac.ae/English/Pages/PrivateSchools.aspx>, [Accessed 9 July 2010]
2. AICPA,(2008), *The AICPA 2008 Top Technology Initiatives : The technologies expected to have an impact on your firm and client organizations*. Accessed [on-line], available at: <http://www.aicpa.org/Publications/Newsletters/ThePracticingCPA/2008/February/Pages/The%20AICPA%202008%20Top%20Technology%20Initiatives.aspx>. [Accessed 19 Nov 2010]
3. AICPA,(2010), *2010 AICPA Top Technology Initiatives Survey Results* Accessed [on-line], available at: <http://www.aicpa.org/InterestAreas/InformationTechnology/Resources/TopTechnologyInitiatives/Pages/2010AICPATopTechnologyInitiativesSurveyResults.aspx>. [Accessed 12 September 2010]
4. 'Corporate governance' (2001), in *Reader's Guide to the Social Sciences*, Routledge, London, United Kingdom, , accessed online from http://www.credoreference.com/entry/routsocial/corporate_governance, [Accessed 06 July 2010]
5. 'Governance' (2007), in *The Social Science Jargon-Buster*, Sage UK, London, United Kingdom, viewed on line from <http://www.credoreference.com/entry/sageukssjb/governance>. [Accessed 06 July 2010]
6. Abu-Musa A. (2009),Exploring COBIT processes for ITG in Saudi Organizations: An empirical Study, 2009. *The International Journal of Digital Accounting Research* Vol.9, 2009, pp.99-126 ISSN: 1577-8517Assessment Tool", Information Systems Control Journal, vol. 6: 32-5.
7. ABU-MUSA, A. A. (2007): "Exploring Information Technology Governance (ITG) in Developing Countries: An Empirical Study", *The International Journal of Digital Accounting Research*, vol. 7, n.13: 71- 117.
8. Al Ali Waleed,, (2010),*IT Governance in Dubai Government Organizations*, BUiD,
9. Anthes, G.H. (2004). Model Mania. *Computer World* (US), vol.38, no.10, p.41-44.
10. Arraj V.,(2010), *ITIL: The Basis*, Published by OGC ITIL Portfolio: – APM Group Limited 2010

B

11. Barton, N. (2004). "This Years Model: Performance Improvement Complements IT Best Practices Frameworks." [Online]. Available: <http://www2.cio.com/analyst/report2669.html> [Accessed 9 August 2010].
12. Baysinger, B. and Buttler, H. (1985) Corporate Governance and the Board of Directors: Performance effect of changes in board composition, *Journal of Law Economics and Organization*, 1, pp. 101124.
13. Benbasat I., Goldstein D. and Mead, M.,(1987), The Case Research Strategy in Studies of Information Systems, *MIS Quarterly*, vol. 11(3), pp.368-386
14. Benbasat, I., & Zmud, R.W. (1999). Empirical research in Information Systems: the practice of relevance. *MIS Quarterly*, 23 (1): 20, 197.
15. Berle, A. and Means, G. (1932), *The Modern Cooperation and Private Property*, . MacMillan, New York, NY.
16. Bhattacharjya, J., & Chang, V. (2007). Evolving IT Governance Practices for Aligning IT with Business - A Case Study in an Australian Institution of Higher Education. *Journal of Information Science & Technology*, 4(1), 24-46. Retrieved from Business Source Complete database. Accessed online via www.jist.info. [Accessed 1 September 2010]
17. Bodnar, G. (2003): "IT Governance", *Internal Auditing*, vol. 18, n. 3: 27.
18. Boynton, A., B. Victor, and B. Pine II, (1996) "Aligning IT With New Competitive Strategies" in J. N.
19. Brancheau, J., & Wetherbe, J. (1987) "Issues In Information Systems Management," *MIS Quarterly*, 11(1), 23-45.
20. Bratton, William W. (2002), *Enron and the Dark Side of Shareholder Value*. Tulane Law Forthcoming. Available at SSRN: <http://ssrn.com/abstract=301475> or [doi:10.2139/ssrn.301475](https://doi.org/10.2139/ssrn.301475). [Accessed 12 March 2010]
21. Brayman, A. (1989) *Research methods and organization studies*, London, Unwin Hayman
22. Broadbent, M. (2003). *The right combination*. CIO. pp. 13-14.
23. Brown, C. V. (1997) Examining the emergence of hybrid IS governance solutions: Evidence from a single case site, *Information Systems Research*, 1, pp. 6994.
24. Brown, L. D. and Caylor, M. L. (2004) *Corporate Governance and Firm Performance*, Working Paper (Atlanta, GA: Georgia State University).
25. Brown, W.; Nasuti, F. (2005b): "What ERP systems can tell us about Sarbanes- Oxley", *Information Management & Computer Security*, vol. 13, n. 4: 311- 327.
26. Buckby, S. and Best, P. and Stewart, J. (2005) The Role of Boards in Reviewing Information Technology Governance (ITG) as part of organizational control environment assessments. In Cusack, B., Eds. *Proceedings 2005 IT Governance International Conference*, pages pp. 1-14, Auckland, New Zealand. Accessed online via http://eprints.qut.edu.au/4928/1/4928_1.pdf. [Accessed 8 April 2010]
27. Bushman, R. M. and Smith, A. J. (2003) *Transparency, financial accounting information and corporate governance*, FRBNY Economic Policy Review, pp. 6587.

C

28. Cadbury Report (1992), *Report of the Committee on Financial Aspects of Corporate Governance*, Gee, London (Chairman: Sir Adrian Cadbury).
29. Carroll, P., Ridley, G. & Young, J. (2004). *COBIT and its utilization: a framework from the literature*. System Sciences, p.233-240.
30. CEB Corporate Executive Board. (2006), *The ITIL Implementation Process* (research brief).
31. Chan, Y., and S. Huff (1993) "Strategic Information Systems Alignment," *Business Quarterly* (58), 1 pp. 51-56.
32. Carroll, P., Ridley, G. & Young, J. (2004). *COBIT and its utilization: a framework from the literature*. System Sciences, p.233-240.
33. Child, J. and Rodrigues, S.B. (2003). Corporate governance and new organizational forms: Issues of double and multiple agencies. *Journal of Management and Governance*, 7, 337-360 accessed [online] at <http://www.springerlink.com/content/h502415402335407/>. [Accessed 6 June 2010]
34. Chris Wood. (2005). IT Governance and Regulatory Compliance: A Silver Lining. *Computer Technology Review*, Accessed online at <http://www.proquest.com/> [Accessed 11 August 2010].
35. CMA, (2007), Holistic management of IT governance essential. *CMA Management*, Retrieved online <http://www.proquest.com.ezproxy.apollolibrary.com/> [Accessed 14 June 2010].
36. IT Governance Institute (2007) *COBIT 4.1*. Available at <http://www.itgi.org>. [Accessed 12 June 2010]
37. COBIT, (2009) ISACA, *COBIT* accessed on-line at www.isaca.org/cobit4.1 [Accessed 12/June 2010].
38. COBIT5 framework, (2010) ISACA, *COBIT5: Design Paper Exposure Draft*, Available at www.isaca.org/cobit5. [Accessed online 12 August 2010]
39. Coen M, Kelly U. (2007), *Information management and governance in UK higher education institutions: bringing IT in from the cold. Perspectives: Policy & Practice in Higher Education*. Available from: Academic Search Complete, Ipswich, MA. [Accessed July 6, 2010].
40. Corporate Governance (2006). In *Collins Dictionary of Economics*, Collins, London, United Kingdom, http://www.credoreference.com/entry/collinsecon/corporate_governance Accessed online 06 July 2010].
41. Corporate Governance (2006b), Volume 4, Issue 4.

42. Corporate Governance, Volume 7, Issue 5 (2007) accessed online at www.viewEmerald.asp?r=78.7708444362885&svr=12&lang=en_us&oid=57744&key=6742e44470a9812668dda95e1e5facc7. [Accessed online 4 July 2010].
43. Cox G. (2005) Chapter 1: Context: Corporate governance. *IT Governance* Available from: Business Source Complete, Ipswich, MA. [Accessed 6 July, 2010].

D

44. De Haes, S., & Van Grembergen, W. (2006). IT Governance best practices in Belgian Organizations. In *proceedings of the Hawaii International Conference on System Sciences*, 4–7 January 2006, Hawaii.
45. Davidson, W. (1996) "Managing the Business Transformation Process," in J. N.
46. De Haes S, Van Grembergen (2009), An Exploratory Study into IT Governance Implementations and its Impact on Business/IT Alignment. *Information Systems Management* 26(2):123-137. Available from: Business Source Complete, Ipswich, MA. [Accessed 6 July, 2010].
47. De Haes S, Van Grembergen W. ,(2008), *An Exploratory Study into the Design of an IT Governance Minimum Baseline through Delphi Research*. Communications of AIS (22):443-458. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
48. De Haes, S., Van Grembergen, W.(2009). An Exploratory Study into IT Governance Implementations and its Impact on Business/IT Alignment. *Information Systems Management*, Vol. 26 Issue 2, p123-137, 15p, DOI: 10.1080/10580530902794786; (AN 37604194)
49. Dey, I. (1993), *Qualitative Data Analysis*, London, Routledge.
50. Dixon, P., & John, D. (1989). "Technology Issues Facing Corporate Management in the 1990s," *MIS Quarterly*, 13(3), 247-55.

E

51. Earl, M. J. (1993) *Corporate Information Systems Management*. Homewood, Ill: Richard D. Irwin, Inc.
52. Earl, Michael J (1996). "Experience in Strategic Information Systems Planning," *MIS Quarterly*, 17(1), 1-24.
53. Eisenhardt, K.M. (1989). Building theories from Case Study Research. *Academy of Management Review*, 14 (4), 532–550.

F

54. Feltus C.(2009), *Introducing ISO/IEC 38500: Corporate Governance in ICT*, 2009- accessed online www.tudor.lu. [2 August 2010]
55. Flyvbjerg (2006) *Five Misunderstandings about Case Study Research*. *Qualitative Inquiry*, 12 (2), 219–245.

G

56. Gerrard, M. (2005) *Creating an Effective IT Governance Process*. Available at <http://cio.com/analyst/report2936.html>. [Accessed 12 June 2010].
57. Goff, L. (1993). "You Say Tomayto, I Say Tomahto," *Computerworld*, page 129.
58. Gompers, P., Ishii, J. and Metrick, A. (2003) Corporate governance and equity prices, *Quarterly Journal of Economics*, 30, pp. 107155.
59. Gompers, P., Ishii, J. and Metrick, A. (2003) Corporate governance and equity prices, *Quarterly Journal of Economics*, 30, pp. 107155.
60. Gottschalk, P. (1999) *Implementation predictors of strategic information systems plans, Information and Management*, 36, pp. 7791.
61. Greenbury Report (1995), Directors' Remuneration: Report of a Study Group, Gee, London.
62. Guldentops, E. (2001). Asking the right questions for IT governance. *Information Systems Control Journal*. Vol. 4. pp. 13-15.
63. Guldentops, E. (2002). COBIT 3rd Edition Usage Survey: Growing acceptance of COBIT. *Information Systems Control Journal*. Vol. 6. pp. 25-26.
64. Guldentops, E. (2003). Maturity measurement- first the purpose, then the method. *Information Systems Control Journal*. Vol. 4. pp. 15-16.
65. Guldentops, E., Van Grembergen, W., Haes, S. (2002). Control and Maturity Survey: Establishing a reference benchmark and a self-assessment tool. *Information Systems Control Journal*. Vol. 6. pp. 32-35.

H

66. Hadden, L. B. (2002): *An investigation of the audit committee and its role in monitoring information technology risks*. D.B.A., Nova Southeastern University, AAT 3074875.
67. Hardy, G. (2006): "Using IT governance and COBIT to deliver value with IT and respond to legal, regulatory and compliance challenges", *Information Security Technical Report*, vol. 11, n. 1: 55-61.
68. Harris D. S., Herron K., Iwanicki S.(2008), Ch 6: The Business Value of IT: Managing Risks, Optimizing Performance, and measuring results, Taylor and Francis Group, LLC Available from: *Business Source Complete*, Ipswich, MA. [Accessed July 6, 2010].
73. Heera & Chang, (2008), Practices and principles of IT governance in Australian Legal Aids Organizations, accessed at www.bsec.canterbury.ac.nz/acis2008/Papers/acis-o176-2008.pdf [Accessed 22 August 2010].
74. Henderson, J. C., Thomas, J. B. (1992). Aligning Business and Information Technology Domains: *Strategic Planning in Hospitals: Hospital and Health Services Administration*. Vol. 37(1). pp. 71-82.

75. Henderson, J.C., Venkatraman, N., & Oldach, S. (1993). Continuous Strategic Alignment: Exploiting Information Technology Capabilities for Competitive Success. *European Management Journal*, 11 (2), 139–149.
76. Henderson, J., and Venkatraman, N (1996). *Aligning Business and IT strategies*, in J.N. Luftman (ed) *Competing in the Information Age: Practical Applications of the Strategic Alignment Model*. New York: Oxford University Press.
77. Hermalin, B. E. and Weisbach, M. S. (1988) The determinants of board composition, *The RAND Journal of Economics*, 19(4), pp. 589-606.
78. Hoffman, Thomas. (2004). IT Governance Is On the Hot Seat. *Computerworld* 38, no. 28: 6-7. *Academic Search Complete*, EBSCOhost (accessed July 6, 2010).
79. Hoffman, T. (2003). Disparate views of IT governance spark debate. *Computer World* (US), vol.37, no.18, p.14.
80. Holistic management of IT governance essential. (2007). *CMA Management*, April 1, 12. <http://www.proquest.com.ezproxy.apollolibrary.com/> [Accessed June 14, 2010].
81. Huang, R. (2007). *Aligning stakeholders' expectations: The roles of IT governance and an organizing vision*. Ph.D. diss., The University of Oklahoma . In *Dissertations & Theses: Full Text* [database on-line]; available from <http://www.proquest.com> publication number AAT 3291939; [Accessed July 6, 2010].
82. Hwang, J.D. (2002). Information resources management: new era, new rules. *IT Professional*, November/December 2002, vol.4, no.6, p.9-18.

83. IBM (1981) *Business systems planning, planning Guide*, GE20-0527, White Plains, NY:IBM Corporation
84. ISACA, (2007), *COBIT 5 framework*, ISACA, Available at www.isaca.org. [Accessed 15 June 2010]
85. ISACA,(2009c), *An introduction to the business Model for Information Security*. Available at www.isaca.org/. [Accessed 15 June 2010].
86. ISACA (2009b), *Building the Business Case for COBIT and Val IT Executive Briefing*, published by ISACA, ITGI,Retrieved from www.itgi.org. [Accessed 3 July 2010]
87. ISACA, (2010), *COBIT5: Design Paper Exposure Draft*, Available at www.isaca.org/cobit5. [Accessed 15 June 2010]
88. ISO, (2005), *ISO ISO/IEC 27001:2005* Accessed Online through the link: http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=42103 [Accessed 15 August 2010].
89. ISO/IEC 38500: (2008), *ISO, An overview of the ISO system* available at www.iso.org, [Accessed August. 13, 2010].
90. IT Governance Institute (2001) *IT Governance Executive Summary*. Available at <http://www.itgi.org>. [Accessed 12 June 2010].
91. IT Governance Institute (2003) *Board Briefing on IT Governance*, (2nd ed). Available at [http:// www.itgi.org](http://www.itgi.org). [Accessed 12 June 2010].
92. IT Governance Institute (2006) *IT Governance Global Status Report*. Available at

- <http://www.itgi.org>. [Accessed 9 August 2010].
93. IT Governance Institute (2007) *COBIT 4.1*. Available at <http://www.itgi.org>. [Accessed 12 June 2010].
 94. IT Governance Institute (2007) *COBIT 4.1*. Available at <http://www.itgi.org>. Accessed 12 June 2010
 95. IT Governance Institute(2008), *The Val IT Framework 2.0*, Available at <http://www.itgi.org>. [Accessed 13 June 2010].
 96. IT Governance: How Top Performers Manage IT Decision Rights for Superior Results. 2004. *Computerworld*, August 30, 37. Accessed online at <http://www.proquest.com/> (accessed August 11, 2010).
 97. IT governance: impressive global awareness and implementation. (2008). *MarketWatch: Global Round-up*, 7(4), 264-265. Retrieved from *Business Source Complete database*.
 98. ITEP,(2001), Education in the UAE,www.uaeinteract.com, accessed online via www.uae.gov.ae <http://www.sheikhmohammed.co.ae/vgn-ext-templating/v/index.jsp?vgnextoid=1e8c4c8631cb4110VgnVCM100000b0140a0aRCRD> www.itep.ae. [Accessed 3 May 2010].
 99. ITGI, (2001) *IT Governance Executive Summary*. Available at <http://www.itgi.org>. [Accessed 12 June 2010].
 100. ITGI,(2003) *Board Briefing on IT Governance*, (2nd edn). Available at <http://www.itgi.org>. [Accessed 12 June 2010].
 101. ITGI (2005a): *Board Briefing on IT Governance*, IT Governance Institute. <http://www.itgi.org/>. [Accessed 15 June 2010]
 102. ITGI (2005b): *Governance of the Extended Organization, Bridging Business and IT Strategies*. IT Governance Institute. John Wiley & Sons, Hoboken, NJ.
 103. ITGI, (2008) *Aligning COBIT4.1, ITILV3 and ISO/IEC 27002 for Business Benefit*, <http://www.itgi.org/> [Accessed July 2010].
 104. ITGI, OGC, (2008), *Aligning COBIT4.1, ITIL®V3 and ISO/IEC 27002 for Business Benefit A Management Briefing From ITGI and OGC*. Accessed online <http://www.itgi.org/> [Accessed 14 July 2010].
 105. ITGI, OGC(2008),, *Aligning COBIT® 4.1, ITIL® V3 and ISO/IEC 27002 for Business Benefit 2008*, Printed in the United States of America and published simultaneously on ITGI, ISACA, OGC and TSO web sites in England and the United States of America
 106. ITGI,(2008c) *Getting Started With Value Management Enterprise Value: Governance Of It Investments .An Executive Primer Based on the Val IT Framework 2*. Accessed online <http://www.itgi.org/> [Accessed 5 July 2010].
 107. ITGI, (2009b), *An introduction to the business Model for Information Security*. Accessed online <http://www.itgi.org/> [Accessed 1 August 2010].
 108. ITGI, (2010): *Board Briefing on IT Governance*, 3rd ed. IT Governance Institute. <http://www.itgi.org/>. [Accessed 3 April 2010].
 109. ITILv3 (2007), *IT Infrastructure Library*, version 3 (5 volumes), TSO (Te Stationery Office).

110. itSMF,(2007), USA, About Us, www.itsmfusa.org [Accessed 15 August 2010].
111. Ives, B., S. Jarvenpaa, and R. Mason, (1993). Global Business Drivers: Aligning Information Technology To Global Business Strategy, *IBM Systems Journal*, (32) 1, pp.143-161.

J

112. Japanese Information Development Corporation. (2000). Corporate Approaches to IT Governance, from www.jipdec.or.jp/chosa/MITIBE, [Accessed 23 April 2010].
113. Jeffrey M., (2004). IT Governance: How Top Performers Manage IT Decision Rights for Superior Results *Financial Executive*, 20(7), 15. Retrieved from ABI/INFORM Global. (Document ID: 717665191). [Accessed 11 August 2010].
114. Jensen, M.C. and Meckling, W.H. (1976), "Theory of the firm: managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol. 4, pp. 305-60.
115. JISC, 2007, "Information Systems Management and Governance Survey Results Analysis". Accessed online via <http://www.ismg.ac.uk/Survey2005.aspx>. [Accessed 6 Sept. 2010]
116. Johnson G., Scholes K., Whittington R. (2008), *Exploring Corporate Strategy*, 8th ed, Prentice Hall.

K

117. Kakabadse, N. K. and Kakabadse, A. (2001) *IS/IT Governance: Need for an integrated model*, *Corporate Governance*, 1(9), pp. 911.
118. Kaplan, R.S., Norton, D. P. (1996). *Knowing the score*. Financial executive, 12(6), 30-34
119. Keen, P. (1996). "Do You Need An IT Strategy?" in J. N. Luftman (ed.) *Competing in the Information Age*, New York, Oxford University Press.
120. Kenneth G Rau. (2004). Effective Governance Of It: Design Objectives, Roles, And Relationships. *Information Systems Management*, 21(4), 35-42. Retrieved from ABI/INFORM Global. (Document ID: 702936391). [Accessed 11 August, 2010].
121. Khan K., (2006). How IT governance is changing. *Journal of Corporate Accounting & Finance* (Wiley) 2006;17(5):21-25. Available from: Business Source Complete, Ipswich, MA. [Accessed 6 July 2010].
122. KHDA, (2010). *Private Schools in Dubai 2008-2009 : KHDA*. Accessed online via <http://www.khda.gov.ae/en/news/khdanews.aspx?ID=17579>. [Accessed 23 August 2010].
123. Kim, G. (2003). Sarbanes-Oxley, Fraud Prevention, and IMCA: A Framework for Effective Controls Assurance. *Computer Fraud & Security*, vol.2003, no.9, p.12-16.
124. King, J. (1995) "Re-engineering Focus Slips," *Computerworld*.

L

125. Lainhart IV, J. W. (2001): "An IT Assurance Framework for the Future", *CPA Journal*, vol. 60, n. 1: 19-23.
126. Lavelle, L. (2002), "The best & worst boards", *Business Week*, 7 October, pp. 50-8.
127. Lee J, Lee C, Jeong K. (2008) Governance Inhibitors in IT Strategy and Management: An Empirical Study of Korean Enterprises. *Global Economic Review* ;37(1):1-22. Available from: EconLit with Full Text, Ipswich, MA. [Accessed July 6, 2010].
128. Letsoalo, K., Brown, I. and Njenga. K. N. (2006) An investigation of enablers and inhibitors of IT governance implementation: A case study of a South African enterprise, in: *IT Governance International Conference*, pp. 2735.
129. Liang, W., T., & Meng T., T., (2004) *The Impact of Corporate Governance on Value Creation in Entrepreneurial Firms*. Singapore Management University [online] [Accessed 11 July 2010]
130. Lompart R. (2008). *COBIT: An IT Governance Tool for the CIO and CEO*. COBIT Focus 2008(2):9-11. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
131. LRQA United Kingdom, (2006), *ISO/IEC 20000*, www.lr.org/industries/lrqa/. [Accessed 21 Sept., 2010].
132. Luftman, J. (1996). *Competing in the Information Age: Practical Applications of the Strategic Alignment Model*, New York: Oxford University Press.
133. Luftman, J., Papp, R., & Brier. T. (1995). "The Strategic Alignment Model: Assessment and Validation," *In Proceedings of the Information Technology Management Group of the Association of Management (AoM) 13th Annual International Conference*, Vancouver, British Columbia, Canada, August 2-5, 1995, 57-66.
134. Luftman, J., Papp, R. Brier, T. (1999) . *Enablers and Inhibitors of Business-IT Alignment*," Communications of the Association for Information Systems, (1) 11.
135. Luftman, J. (2000). *Assessing Business-IT Alignment Maturity*, Communications of the Association for Information Systems, 4. Retrieved from <http://www.sba.oakland.edu/faculty/lauer/downloads/MIS625/Readings/IT-Business%20Alignment.pdf>. [Accessed 3 March 2010]
136. Luftman, J., & Rajkumark, K. (2007). An update on business/alignment: a line has been drawn. *MIS Quarterly Executive*, 6 (3).

M

137. Martin, P. (2002), "Ah, shareholders, let us be true to one another", Accessed online www.FT.com, [Accessed 7 July 2010].
138. Maryfran J. (2004). IT's New Balance. *Computerworld*, August 2, 14.

<http://www.proquest.com/> [Accessed 11 August, 2010].

139. McLean, E., & Soden, J., (1977). *Strategic Planning for MIS*, New York, John Wiley & Sons Mills, P., (1986), *Managing Service Industries*, New York Ballinger;
140. McLeod, G. and Smith, D. (1996) *Managing Information Technology Projects* (San Francisco, CA: Boyd & Fraser, ITP Publishing Company).
141. Michael, D. , Herron, D., Iwanicki, S. (2008). *The Business Value of IT: Managing Risks, Optimizing Performance and Measuring Results*.1 Review CRC Press, - Business & Economics -
142. Michaels, A. (2004). The downside to staying Public. *Financial Times*, P.10 accessed [online] at http://scholar.google.ae/scholar?hl=en&q=The+downside+to+staying+Public&as_sd t=2000. [Accessed 5 March 2010].
143. Mihai F.,(2010), Auditing IT Governance, *Informatica Economică* vol. 14, no. 1/2010 retrieved online from <http://revistaie.ase.ro/content/53/09%20Iliescu.pdf>. [Retrieved 23 April 2010]
144. Mills, P., (1986), *Managing Service Industries*, New York Ballinger.
145. Milne k.,; Bowles A., (2009), *How IT Governance Drives Improved Performance*. accessed online IT Process Institute www.itpi.org. [Accessed 22 March 2010]
146. Mingers, J. (2001). *Combining IT research methods: towards a pluralist methodology*. *Information Systems Research*, 12 (3): 240–259.
147. Mingers, J. (2001). *Combining IT research methods: towards a pluralist methodology*. *Information Systems Research*, 12 (3): 240–259.
148. Mir, S., Nicholson, L. (2004). *Facing the Risks: corporate decision making and transactional risk management*. Keeping Good Companies. pp 204-205.
149. Monnoyer, E. & Willmott, P. (2005). What IT leaders do: Companies that rely on IT governance systems alone will come up short. *McKinsey Quarterly on IT*, 2–6.

N

150. Nbuzinfosol organisation(2010), accessed on-line <http://www.nbuzinfosol.com/Customers.aspx>. [Accessed 9 of August 2010].
151. Nelson A (2008). *Building a Governance Foundation*. Baseline (91):34. Available from: MasterFILE Premier, Ipswich, MA. [Accessed July 6, 2010].
152. Nelson, J. (2004). Corporate governance practices, CEO characteristics and firm performance. *Journal of Corporate Finance*, [Accessed 27 February 2004], p.1-32.
153. Nick R. (2005). IT excellence starts with governance. *The Journal of Investment Compliance* 6, no. 3, (January 1): 45-49. Accessed online <http://www.proquest.com/> [Accessed 11 August, 2010].
154. Niederman, F., Brancheau, J., and Wetherbe, J. (1991). "Information Systems Management Issues For the 1990s," *MIS Quarterly*, 15(4), 475-95.
155. Nolan E., A (2004). *Committee of One's Own ; Corporate boards and top executives aren't paying enough attention to IT*. Harvard Business School , Accessed online <http://www.allbusiness.com/company-activities-management/company-structures-ownership/13440255-1.html> [Accessed 26 March, 2010]

O

156. O'Keefe, B., & Paul, R. B. (2000). Editorial. *European Journal of Information Systems*, 9, 1-2.
157. OECD (1999), *Principles of Corporate Governance, Organization for Economic Co-operation and Development*, available at: <http://thecorporatelibrary.com/docs/oecd/oecdprinciples.html> [Accessed 23 March 2010]
158. OECD, (2010), *Corporate Governance And The Financial Crisis Conclusions And Emerging Good Practices To Enhance Implementation Of The Principles*. Retrived online at <http://www.oecd.org/dataoecd/53/62/44679170.pdf> [Accessed 12 April 2010]
159. Organization for Economic Cooperation and Development (OECD) (1999) *OECD Principles of Corporate Governance*. Available at <http://www.oecd.org> [Accessed 26 May 2010].

P

160. Papp, R. (1995). *Determinants of Strategically Aligned Organizations: A Multiindustry, Multi-perspective Analysis*, (PhD Dissertation), Hoboken, New Jersey: Stevens Institute of Technology.
161. Papp, R., and Luftman, J. (1995). "Business and IT Strategic Alignment: New Perspectives and Assessments," *In Proceedings of the Association for Information Systems, Inaugural Americas Conference on Information Systems*, Pittsburgh, PA, August 25-27, 1995.
162. Parker, M., & Benson, R., (1988). *Information Economics*, Englewood Cliffs, New Jersey: Prentice-Hall.
163. Parker, M.M., Peterson, R.R. & Ribbers, P.M.A. (2002). Designing information technology governance processes: diagnosing contemporary practices and competing theories. *System Sciences*, p.3143-3154.
164. Peterson R. (2004a), *Crafting Information Technology Governance*. *Information Systems Management*, 2004;21(4):7-22. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
165. Peterson, R. (2004b). *Information Strategies and Tactics For Information Technology Governance*, in *Strategies for information technology governance*, book ed. by Van Grembergen, Idea Group Publications.
166. Peterson, R. et al. (2002). "Information Technology Governance Processes under Environmental Dynamism: Investigating Competing Theories of Decision Making and Knowledge Sharing," *In Proceeding of 23th International Conference on Information Systems*.
167. Porter M.E., (1980), *Competitive strategy: Techniques for analyzing industries and competitors*, free Press, 1980., p.5
168. Porter M., (2004), *Competitive Strategy: Techniques for Analyzing Industries and*

Competitors. Harvard school.

169. Posthumusa, S. and Solms, R. V. (2005) *IT Oversight: An Important Function of Corporate Governance* (Port Elizabeth: Nelson Mandela Metropolitan University).
170. PwC and ITGI (2007) *IT Governance in Practice: Insight from leading CIOs* (New York: Pricewaterhouse Coopers).

R

171. Robson, C. (2002) *Real World Research* (2nd edn), Oxford, Blackwell.
172. Robson, W. (1994). *Strategic Management and Information Systems: An Integrated Approach*, London: Pitman Publishing.
173. Ross, J. & Weill, P. 2004a. "Recipe for good governance." [Online]. Available: <http://www.cio.com/archive/061504/keynote.html> [Accessed 3 April, 2010].
174. Ross, J. & Weill, P. 2004b. "Ten principles of IT governance." [Online]. Available: http://hbswk.hbs.edu/tools/print_item.jhtml?id=4241&t=strategy [Accessed 12 November, 2010].
175. Ryerson (2007). *Exploratory Research*. Retrieved at www.ryerson.ca/mjoppe/ResearchProcess/ExploratoryResearch.htm. [Accessed 10 June 2010]

S

176. Saayman, C., (2007), *EdPERF: The development of an instrument to measure perceived service quality in secondary schools*. Dissertation (BUiD)
177. Sambamurthy V, Zmud R. (1999) Arrangement For Information Technology Governance: A Theory Of Multiple Contingencies. *MIS Quarterly* [serial online]. June 1999;23(2):261-290. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
178. Samuel C.(2010), *CMMI and Six Sigma – An Integrative Approach*. Accessed [online] <http://www.cioindex.com> , [Accessed 17 August 2010].
179. Saunders M., Lewis P., Thornhill A.(2007) *Research Methods for Business Students* (4th Ed), Prentice Hall
180. SEI presentation (2007), *CMMI Overview 07*, www.sei.cmu.edu/cmmi/adoption/pdf/cmmioverview07.pdf, p. 35, Reporting Organizational Categories, [Accessed 14 March 2010]
181. SEI,(2001), *Changes to Policies on SCAMPI A Appraisals in CMMI Version 1.2 and the Sunset Period for V1.1.*, www.sei.cmu.edu/cmmi/appraisals/cmmiv11-sunsetappraisal-policies.html [Accessed Aug. 10, 2010].
182. Selig, Gad. (2008), *Implementing IT Governance: A Practical Guide to Global Best Practices in IT*, Van Haren Publishing.
183. Sharma, D., Stone, M., & Ekinci, Y. (2009). IT governance and project management: A qualitative study. *Journal of Database Marketing & Customer Strategy Management*, 16(1), 29-50. doi:10.1057/dbm.2009.6.
184. Shleifer, A., and Vishny R., (1997), A survey of corporate governance, *Journal of*

Finance 52, 737-783. Accessed [online] via <http://www.istor.org/pss/2329497>. [Accessed 1 March 2010]

185. Simonsson, M. and Johnson, P. (2006) Defining IT governance: A consolidation of literature, *In Proceeding of the 18th Conference on Advanced Information Systems Engineering*.
186. Strategies for Information Technology Governance. (2004). *Information Management*, 17(1/2), 17-20. Retrieved from ABI/INFORM Global. (Document ID: 657192391). [Accessed August 11, 2010].
187. Strategies for Information Technology Governance. (2004). *Information Technology Newsletter*, 15(2), 30-31. Retrieved from ABI/INFORM Global. (Document ID: 690810681). [Accessed 11 August, 2010].
188. Stuart R. (2004). Is Governance. *Information Systems Management* 21, no. 4, (October 1): 81-82. Accessed [on-line] <http://www.proquest.com/> [Accessed 7 July 2010].
189. Symons C. (2005), "IT Governance Framework", Forrester, [online] available at <http://www.forrester.com/Research/Document/Excerpt/0,7211,36563,00.html> [Accessed 1 Sept 2010].

T

190. Teo, S. H. and Ang, J. S. (1999) Critical success factor in the alignment of IS plans with business plans, *International Journal of Information Management*, 19, pp. 173185.
191. Tricker, Robert I., (1994), *International Corporate Governance: Text, Readings, and Cases*, New York and London: Prentice Hall.
192. Trites, G. (2003). Director Responsibility for IT governance. *Paper presented at the University of Waterloo IS Assurance Symposium*, University of Waterloo Canada.
193. Trites, G.. (2009). The top ten IT issues. *CA Magazine*, 142(7), 20-25,27. Retrieved from ABI/INFORM Global. (Document ID: 1861878271). [Accessed 11 August 2010].

V

194. VAL IT, (2008): *Enterprise Value: Governance Of It Investments The Val IT Framework 2.0*, Published by ITGI, 2008, accessed online via www.itgi.org. [Accessed 3 April 2010].
195. Van Grembergen, W. (2000). The Balanced Scorecard and IT Governance. *Information Systems Control Journal*. Vol. 2. pp. 40-43.
196. Van Grembergen, W. (2001). Introduction to the Minitrack: IT Governance and its Mechanisms. *In Proceedings of the 35th Hawaii International Conference on System Sciences (HICSS)*, HICSS35, January 7–10, 2002, Hilton Waialeoloa Village, Island of Hawaii.
197. Van Grembergen, W., Amelinckx, I. (2001). *Measuring and managing E-Business projects through the Balanced Scorecard*. Accessed from www.itgi.com.
198. Van Grembergen, W., De Haes, S. and Guldentops, E. (2004) *Strategies for Information Technology Governance* (Hershey, PA: Idea Group Publishing).

199. Van Grembergen, W., De Haes, S., & Guldentops, E. (2003). *Structures, Processes and Relational Mechanisms for IT Governance*. In Van Grembergen (ed), *Strategies for Information Technology Governance*. Hershey, PA: Idea Group Publishing.
200. W. Van Grembergen and S. De Haes, (2006) *Information Technology Governance Best Practices in Belgian Organizations, Proceedings of the 39th Hawaii International Conference on System Sciences*, 2006.
201. Violino, B. (2005): "IT frameworks demystified", *Network World*, vol.22, n. 7: 18-19.
202. Vishwanath, T. and Kaufmann, D. (1999) *Toward Transparency in Finance and Governance* (Washington, DC: The World Bank).
203. Von B. and George, B., L.(1976); *General System Theory: Foundations, Development, Applications*.

W

204. Webb, P., Pollard, C. and Ridley, G. (2006) Attempting to define IT governance: Wisdom or folly? *In: Proceedings of the 39th Hawaii International Conference on System Sciences*.
205. Weill P., Ross J.,(2004), *IT Governance: How Top Performers Manage IT Decision Rights for Superior Results*(Boston: Harvard Business School Press).
206. Weill P., and Ross J.,(2005), A Matrixed Approach to Designing IT Governance, *MIT Sloan Management Review*, VOL.46 NO.2, accessed online via <http://www.proquest.com/> [Accessed September 11, 2010].
207. Weill R., & Woodham R., (2002). *Don't Just Lead, Govern: Implementing Effective IT Governance*. CISR WP, 326, Center for Information Systems, Research. Massachusetts Institute of Technology.
208. Weill, P. (2005) "A matrixed approach to designing IT governance." *MIT Sloan Management Review* 46.2 accessed [online] <http://openurl.man.ac.uk/sfxlcl3?genre=article&issn=1532-9194&date=2005-01&volume=46&issue=2&title=MIT%20Sloan%20Management%20Review%20%2C%20v%2046%2C%20n%20%2C%20p%2026-34&atitle=A%20matrixed%20approach%20to%20designing%20IT%20governance&aulast=Weill&aufirst=P.&sid=webfeat.> [Accessed 17 September 2010].
209. Weill, P. (2004). Don't just lead, govern: How top performing firms govern IT, *MIS Quarterly Executive*, 3(1): 1–17.
210. Weill, P. and Ross J.. (2004). *Don't Just Lead, Govern: Empowering Effective Enterprise Use of Information Technology*, Harvard Business School Press, Boston.
211. Weill, P. and Ross, J. (2004b) *IT Governance* (Boston, MA, Harvard Business School Press).
212. Weill, P. and Ross, J. W. (2004c) *IT Governance on One Page*, CISR WP, No. 349.
213. Weill, P. and Woodham, R. (2002) *Don't Just Lead, Govern: Implementing Effective IT Governance*, CISR Working Paper, no. 326 (Cambridge, MA: Center for Information Systems Research).
214. Weill, P., & Broadbent (1998). *Leveraging the New Infrastructure: how Market Leaders Capitalize on Information Technology*. Boston: Harvard Business School Press.

215. WEOD, World Economic Outlook Database, (2010), via the International monetary fund website <http://www.imf.org/external/ns/cs.aspx?id=28> accessed online via http://www.imf.org/external/pubs/ft/weo/2010/01/weodata/weoselgr.aspxhttp://www.imf.org/external/pubs/ft/weo/2010/01/weodata/weorept.aspx?sy=2008&ey=2015&scsm=1&ssd=1&sort=country&ds=.&br=1&pr1.x=84&pr1.y=3&c=612%2C682%2C419%2C686%2C611%2C449%2C469%2C453%2C429%2C456%2C433%2C732%2C439%2C463%2C443%2C744%2C446%2C466%2C672%2C474&s=NGDP_R%2CNGDP_RPCH%2CNGDP%2CNGDPD%2CNGDP_D%2CNGDPRPC%2CNGDPPC%2CNGDPDPC%2CPPPGDP%2CPPPPC%2CPPPSH%2CPPPEX%2CPCPI%2CPCPICH%2CPCPIE%2CPCPIEPCH%2CLP%2CBCA%2CBCA_NGDPD&grp=0&a=# [download on 23 august 2010]
216. Wessels E., Van Loggerenberg J.,(2006) *IT Governance: Theory and Practice, Proceedings of the Conference on Information Technology in Tertiary Education, Pretoria, South Africa, 18 – 20 September 2006*
217. Westerman G. and Richard H., (2007). *IT Risk, Turning Business Treats into Competitive Advantage* (Boston: Harvard Business School Press, 2007), 23.
218. Williams, P. (2006): "A helping hand with IT governance", *Computer Weekly*, Sep. 19: 26 - 27.

X

219. Xavier, V. (2000) *Corporate Governance: Theoretical & Empirical Perspectives* (Cambridge: Cambridge University Press).

Y

220. Yajiong X, Huigang L, Boulton W., (2008). Information Technology Governance In Information Technology Investment Decision Processes: The Impact Of Investment Characteristics, External Environment, And Internal Context. *MIS Quarterly* [serial online]. March 2008;32(1):67-96. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
221. Yanosky R., Borreson C. J., (2008), *Key findings: Process and Politics: IT governance in Higher education*, Retrieved online at http://scholar.google.ae/scholar?q=Process+and+Politics:+IT+Governance+in+Higher+Education&hl=en&as_sdt=0&as_vis=1&oi=scholart , [Accessed online 25 July 2010].
222. Yeates, S., (2006), *ISO 27001: Information Security Management Systems*. Accessed online www.iso.com. [Accessed 27 May 2010]
223. Young, S., Thyil, V.,(2008). A holistic model of corporate governance: a new research framework ,*Source: Corporate Governance* Vol 8 Issue: 1 2008

Bibliography

A

1. Ackerman M, Rucker B, Wells A, Wilson J, Wittmann R. (2009). *IT Strategic Audit Plan*. *Journal of Technology Research* [serial online]. April 2009;1:1-10. Available from: Academic Search Complete, Ipswich, MA. [Accessed July 6, 2010].
2. Alchian, A. and Demsetz, H. (1972), "*Production, information costs and economic organization*", *The American Economic Review*, Vol. 62, p. 777.
3. Ali S., (2006), Effective Information Technology Governance Mechanisms: An Australian Study. *Gadjah Mada International Journal of Business* [serial online]. January 2006;8(1):69-102. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
4. Andrews K., R.,(1980). *Directors Responsibility for Corporate Strategy*, *Harvard Business Review*, 58/6: 30-41.
5. Appendix (2005). *IT Governance* [serial online]. July 15, 2005;:73-77. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
6. Atkins B (2009). *Corporate Governance And Information Governance: How Technology Became the Board's Business*. *Community Banker* [serial online]. August 2009;18(8):40. Available from: MasterFILE Premier, Ipswich, MA. [Accessed July 6, 2010].

B

7. Baets, W. (1996). Some Empirical Evidence on IS Strategy Alignment in Banking, *Information and Management*, Vol. 30:4, pp. 155-77.
8. Baysinger, B. and Buttler, H. (1985) Corporate Governance and the Board of Directors: Performance effect of changes in board composition, *Journal of Law Economics and Organization*, 1, pp. 101124.
9. Beveridge, J. (2008). *COBIT and IT Governance: Focusing on IT Governance, Value Delivery and IT Investment Evaluation*. *COBIT Focus*, Vol(2), 1-3. Retrieved from Business Source Complete database.[Accessed 2 July 2010].
10. Bodnar, G. (2006): *What's New in COBIT 4.0*, *Internal Auditing*, vol. 21, n. 4: 37- 44.
11. Bradbury D.(2008). *Understanding governance*. *Backbone* [serial online].pg:20-26. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
12. Brown A, Grant G. (2005). *Framing The Frameworks: A Review Of It Governance Research*. *Communications of AIS* [serial online]. 2005(15):696-712. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
13. Brown, L. D. and Caylor, M. L. (2004) *Corporate Governance and Firm Performance*, *Working Paper* (Atlanta, GA: Georgia State University).
14. Brown, L. D. and Caylor, M. L. (2004) *Corporate Governance and Firm Performance*, *Working Paper* (Atlanta, GA: Georgia State University).

C

15. Capitalize on Information Technology (2006). Boston, Harvard Business School Press.
16. Central Bank of the UAE,(2008), accessed online via http://www.centralbank.ae/en/index.php?option=com_content&view=article&id=102&Itemid=90 [Access 24 August 2010].
17. Chapter 3: Organizational impact. [e-book]. Thorogood Publishing Ltd.; 2005:24-34. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
18. Chapter 5,(2005). Implementing IT governance. IT Governance [serial online]. 2005;:57-67. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
19. Chriss, M.B., Konrad, M., and Shrum, S., (2004), *CMMI Guidelines for Process Integration and Product Improvement*, CMU/SEI–Addison-Wesley.
20. Coase, R.H. (1937), *The Nature of the Firm, Readings in Price Theory*, Irwin, Homewood, IL, New Series, V. pp 33151.
21. COBIT, (2009) ISACA, accessed on-line at www.isaca.org/cobit4.1 [Accessed 12 June 2010].
22. Corporate governance (2001), In Reader's Guide to the Social Sciences, Routledge, London, United Kingdom, viewed 06 July 2010, Accessed online from http://www.credoreference.com/entry/routsocial/corporate_governance. [Accessed 14 May 2010]
23. Council, Claude L., III. (2006) *An investigation of a COBIT systems security IT governance initiative in higher education*. Ph.D. diss., Nova Southeastern University ,2006. In *Dissertations & Theses: Full Text* [database on-line]; available from <http://www.proquest.com> (publication number AAT 3206177; [Accessed July 6, 2010].

D

24. Daly, K. (2007). *IT Governance Joins the Priority List*. Directorship, 33(2), 76. Retrieved from MasterFILE Premier database. [Accessed June 16, 2010].
25. De Haes S, Van Grembergen W,(2009). An Exploratory Study into IT Governance Implementations and its Impact on Business/IT Alignment. *Information Systems Management* [serial online]. 2009;26(2):123-137. Available from: Business Source Complete, Ipswich, MA. [Accessed 6 July 2010].
26. De Haes, S., Van Grembergen, W.(2009). An Exploratory Study into IT Governance Implementations and its Impact on Business/IT Alignment. *Information Systems Management*, Vol. 26 Issue 2, p123-137, 15p, DOI: 10.1080/10580530902794786; (AN 37604194).
27. De Haes, S., (2008), An Exploratory Study into the Design of an IT Governance Minimum Baseline through Delphi Research, Volume 22, Article 24, pp. 443-, [Accessed 12 August 2010].

28. Debreceeny, R., Gray, G., L.(2009). *IT Governance and Process Maturity: A Research Study*. COBIT Focus; Vol. 2009 Issue 2, p14-16, 3p, Accessed online:
<http://search.ebscohost.com.ezproxy.apollolibrary.com/login.aspx?direct=true&db=bth&AN=38415641&site=bsi-live>. [Accessed 18 June 2010].
29. Debreceeny, Roger, and Glen L. Gray. (2009). "IT Governance and Process Maturity: A Research Study." COBIT Focus 2009, no. 2: 14-16. *Business Source Complete*, EBSCOhost [Accessed 6 July, 2010].
30. Devos, J., Hendrik V. L., and Dirk D. (2009). IT Governance in SMEs: A Theoretical Framework Based on the Outsourced Information System Failure. *Proceedings of the European Conference on Information Management & Evaluation* 132-142. Business Source Complete, EBSCOhost [Accessed July 6, 2010].
31. Dimsdale, N. and Prevezer, M. (1994), *Capital Markets and Corporate Governance*, Clarendon Press, Oxford.
32. Dong S. C., Byoung G. K., Dong W.K, and Sungchul C (2008). Corporate Governance And Firm Performance: The Korea Evidence. *Journal of International Business & Economics* [serial online].Vol 8(2):46-53. Available from: Business Source Complete, Ipswich, MA. [Accessed 9 July, 2010].
33. Dong, S.(2007). *Value creation from customer relationship management systems: Resources, IT governance, and time lag*. Ph.D. diss., University of California, Irvine ,2007. In *ABI/INFORM Global* [database on-line]; available from <http://www.proquest.com> (publication number AAT 3269618; [Accessed 6 July 2010].
34. Donker, H., Zahir, S., (2008), Towards an impartial and effective corporate governance rating system , *Corporate Governance* Volume: 8 Issue: 1 2008

E

35. Elliott, L. and Schroth, R. (2002), *How Companies Lie: Why Enron Is Just the Tip of the Iceberg*, Crown Business/Random House, New York, NY.
36. Enrique S., Yves C., (2008),"Business and IT Governance Alignment Simulation Essay on a Business Process and IT Service Model," hicss, pp.434, *Proceedings of the 41st Annual Hawaii International Conference on System Sciences* (HICSS 2008).
37. Enterprise Value(2008), *Governance of IT Investments, The Val IT Framework 2.0* Printed in the United States of America

F

38. Filipek R. (2008) . Survey Discusses Top IT Governance Trends. *Internal Auditor* [serial online]. April 2008;65(2):17. Available from: MasterFILE Premier, Ipswich, MA. [Accessed July 6, 2010].
39. Florin I, Minodora U.(2009). The Shift To It Governance - A Global Approach. *Annals of the University of Oradea, Economic Science Series* [serial online]. December 2009;18(4):954-958. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].

G

40. Gerrard, M. (2005) *Creating an Effective IT Governance Process*. Available at <http://cio.com/analyst/report2936.html>. [Accessed 12 June 2010].
41. Gheorghe M.,(2010), Audit Methodology for ITG, Published by *Informatica Economica* vol 14 no 1/2010
42. Gheorghe M(2010). Audit Methodology for IT Governance. *Informatica Economica* [serial online]. March 2010;14(1):32-42. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
43. Gheorghe, M., Nastase, P., Boldeanu, D., & Ofelia, A. (2009). IT Governance in Romania: A Case Study. *Global Economy Journal*, 9(1), Retrieved from EconLit with Full Text database.
44. Gompers, P., Ishii, J. and Metrick, A. (2003) Corporate governance and equity prices, *Quarterly Journal of Economics*, 30, pp. 107155.
45. Guldentops, E. (2002). COBIT 3rd Edition Usage Survey: Growing acceptance of COBIT. *Information Systems Control Journal*. Vol. 6. pp. 25-26.
46. Guldentops, E. (2003). Maturity measurement- first the purpose, then the method. *Information Systems Control Journal*. Vol. 4. pp. 15-16.
47. Guldentops, E., Van Grembergen, W., and Haes, S. (2002). Control and Maturity Survey: Establishing a reference benchmark and a self-assessment tool. *Information Systems Control Journal*. Vol. 6. pp. 32-35.

H

48. Handley-Schachler, M., and Juleff, L., Paton, C., (2007) Corporate governance in the financial services sector, *Corporate Governance* Volume: 7 Issue: 5 2007
49. Hardy G(2009). *Implementing and Continually Improving IT Governance*. COBIT Focus [serial online]. October 2009;2009(4):3-4. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
50. Hardy, G. (2003). Coordinating IT Governance - A new Role for IT strategy committees. *Information systems Control Journal*. Vol. 4. pp. 21-24.
51. Henderson, J., & Venkatraman, N. (1990). *Strategic Alignment: A Model For Organizational Transformation Via Information Technology*, Working Paper 3223- 90, Cambridge, MA: Sloan School of Management, Massachusetts Institute Technology.
52. Hermalin, B. E. and Weisbach, M. S. (1988) The determinants of board composition, *The RAND Journal of Economics*, 19(4), pp. 589606.
53. Hildreth S(2005). Business in the DRIVER'S SEAT. *Computerworld* [serial online]. October 17, 2005;39(42):31. Available from: MasterFILE Premier, Ipswich, MA. [Accessed July 6, 2010].
54. Hoffman, Thomas. (2004). "IT Governance Is On the Hot Seat." *Computerworld* 38, no. 28: 6-7. Academic Search Complete, EBSCOhost [Accessed July 6, 2010].
55. Hoque , F., Sambamurthy V., Zmud R., Wilson C., (2006), *Winning The 3-Legged Race: When Business and Technology Run Together*, Prentice Hall

56. Horne L. A(2009). Practical Approach to Implementing COBIT. *COBIT Focus* [serial online]. October 2009;2009(4):5-6. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
57. Huang, R.(2007).*Aligning stakeholders' expectations: The roles of IT governance and an organizing vision*. Ph.D. diss., The University of Oklahoma ,2007. In *Dissertations & Theses: Full Text* [database on-line]; available from <http://www.proquest.com> (publication number AAT 3291939; [Accessed 6 July, 2010].

I

58. Iliescu, F. (2010). Auditing IT Governance. *Informatica Economica*, 14(1), 93-102. Retrieved from Business Source Complete database.
59. IT Governance Institute (2006) IT Governance Global Status Report. Available at <http://www.itgi.org>. [Accessed 9 April 2010]
60. IT Governance Institute (2007), *COBIT 4.1*, ISACA. Accessed online at <http://www.itgi.org>. [Accessed 9 April 2010]
61. IT Governance Institute(2008), *The Val IT Framework 2.0*, pp. 6. . Accessed online at <http://www.itgi.org>. [Accessed 9 April 2010]
62. IT governance(2008): *impressive global awareness and implementation*. Market Watch: Global Round-up, 7(4), 264-265. Retrieved from Business Source Complete database.
63. ITGI (2005a): *Board Briefing on IT Governance*, IT Governance Institute. . Accessed online at <http://www.itgi.org>. [Accessed 29 April 2010]
64. ITGI (2005b): *Governance of the Extended Organization, Bridging Business and IT Strategies*. IT Governance Institute. John Wiley & Sons, Hoboken, NJ.
65. ITGI, (2001) *IT Governance Executive Summary*. Available at <http://www.itgi.org>. Accessed 12 June 2010.
66. ITGI,(2003) Board Briefing on IT Governance, (2nd edn). Available at [http:// www.itgi.org](http://www.itgi.org). [Accessed 12 June 2007].
67. ITGlc,(2008) *Getting Started With Value Management Enterprise Value: Governance Of It Investments*, An Executive Primer Based on the Val IT Framework 2.0

K

68. Khan K(2006). How IT governance is changing. *Journal of Corporate Accounting & Finance* (Wiley) [serial online]. July 2006;17(5):21-25. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
69. KHDA, (2010) *Private Schools in Dubai 2008-2009* Tue 19 January 2010 Source : KHDA accessed online via <http://www.khda.gov.ae/en/news/khdanews.aspx?ID=17579> [Accessed 23 August 2010].
70. Knahl, M. (2009). A Conceptual Framework for the Integration of IT Infrastructure Management, IT Service Management and IT Governance. *Proceedings of World Academy of Science: Engineering & Technology*, 40447-452. Retrieved from Academic Search

Complete database. [Accessed 23 April 2010]

71. Korhonen, J., Hiekkanen, K., & Lähteenmäki, J. (2009). EA and IT Governance - a Systemic Approach. *Proceedings of the European Conference on Management, Leadership & Governance*, 66-74. Retrieved from Business Source Complete database. [Accessed 10 June 2010].
72. Korolov m. (2010). Six Steps to Better IT GRC. *Treasury & Risk* [serial online]. June 2010;;20. Available from: MasterFILE Premier, Ipswich, MA. [Accessed July 6, 2010].

L

73. Lainhart IV, John W. (2000) "Why IT Governance Is a Top Management Issue." *Journal of Corporate Accounting & Finance* (Wiley) 11.5 (2000): 33-40. Business Source Complete. EBSCO. Web. [Accessed 6 July 2010].
74. Lainhart J, Oliver D.(2010). *Integrating ISACA Frameworks Into One Overarching Framework: COBIT 5*. COBIT Focus [serial online]. April 2010;2010(2):6-9. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
75. Lainhart J. (2008). *CGEIT Credential Meets Business Demands for IT Governance*. COBIT Focus [serial online]. April 2008;2008(2):3-5. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
76. Legrenzi, C. (2003). The second edition of the European survey on the economic value of information technology: inventory of practices concerning IT governance. *Information Systems Control Journal*. Vol. 3. pp. 50-55.
77. Lew, D.(2009), *Maturity Assessment Tool to Be Released*. By:. *COBIT Focus*, Vol. 2009 Issue 3, p3-5, 3p, 1 Diagram, 1 Graph; (AN 43385608)
78. Liebs, S. (1992). "We're All In This Together," *Information Week*, October 26, 1992;
79. Lomparte R.(2008), *COBIT: An IT Governance Tool for the CIO and CEO*. COBIT Focus [serial online]. April 2008;2008(2):9-11. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
80. LRQA United Kingdom, (2006), *ISO/IEC 20000*, Accessed online www.lr.org/industries/lrqa/ [Accessed Sept. 21, 2010].
81. Luftman, J. (1997). "Align in the Sand", *Computerworld*, February 17,1997.
82. Luftman, J. and Brier, T., (1999) "Achieving and Sustaining Business-IT Alignment," *California Management Review*, No. 1, Fall 1999, pp 109-122.
83. Luftman, J., Lewis, P., & Oldach, S. (1993). "Transforming the Enterprise: The Alignment of Business and Information Technology Strategies," *IBM Systems Journal*, 32(1), 198-221

M

84. Malla P. B. (2004), Understanding the corporate governance quadrilateral
Source: *Corporate Governance* Volume: 4 Issue: 4 2004, Accessed online via
<http://www.emeraldinsight.com.ezproxy.apollolibrary.com/search.htm?PHPSESSID=55mp4l03q8l82ujmrqcbagl8u0&ct=all&st1=Corporate+governance&fd1=all&mm1=all&bl2=and&st2=&fd2=all&mm2=all&bl3=and&st3=&fd3=all&mm3=all&ys=all&ye=all&search=Search&cd=sc> [Accessed 13 June 2010].
85. Mayberry-S. , Melodie I. T. (1996). *Determinants of information technology strategic performance: An analysis of firm performance, IT performance, IT investment intensity and IT governance in the health care sector*. Ph.D. dissertation, The Claremont Graduate University, United States -- California. Retrieved, from Dissertations & Theses: Full Text.(Publication No. AAT 9724353).[Accessed July 6, 2010].
86. McManus J.(2004). *Working Towards an Information Governance Strategy*. Management Services [serial online]. August 2004;48(8):8-13. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
87. Merhout J, and Havelka D.(2008). Information Technology Auditing: A Value-Added IT Governance Partnership between IT Management and Audit. *Communications of AIS* [serial online]. June 2008;2008(23):463-482. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
88. Messabia, N. and Elbekkali, A. (2010), *Information Technology Governance: A Stakeholder Approach*. Available from SSRN: <http://ssrn.com/abstract=1600087> [Accessed 17 April 2010]
89. Millstein I., (2003). Corporate Governance. *Vital Speeches of the Day* [serial online]. November 15, 2003;70(3):87-93. Available from: Academic Search Complete, Ipswich, MA. [Accessed July 6, 2010].
90. Mir, S., Nicholson, L. (2004). Facing the Risks: corporate decision making and transactional risk management. *Keeping Good Companies*. pp 204-205.

N

91. Nelson A(2008).. *Building a Governance Foundation*. Baseline [serial online]. December 2008;(91):34. Available from: MasterFILE Premier, Ipswich, MA. [Accessed July 6, 2010].
92. Neto, J. S.; Webster, I. (2008) *Indirect COBIT Process Maturity level Evaluation*. COBIT Focus, 2008, Vol. 2008 Issue 4, p1-3, 3p; (AN 34848808) Accessed online :
<http://search.ebscohost.com.ezproxy.apollolibrary.com/login.aspx?direct=true&db=bth&AN=34848808&site=bsi-live> [Accessed 12 June 2010] .

O

94. O'Keefe, B., & Paul, R. B. (2000). Editorial. *European Journal of Information Systems*, 9, 1–2.
95. OECD (1999), *Principles of Corporate Governance, Organization for Economic Co-operation and Development*, available at: <http://thecorporatelibrary.com/docs/oecd/oecdprinciples.html>. [Accessed 19 June 2010]
96. Organization for Economic Cooperation and Development (OECD) (1999) *OECD Principles of Corporate Governance*. Available at <http://www.oecd.org>. [Accessed 12 July 2010]
97. Organization for Economic Cooperation and Development (OECD) (2010) *OECD Principles of Corporate Governance*. Available at <http://www.oecd.org>. [Accessed 12 July 2010]

P

98. Papp, R. (1995). *Determinants of Strategically Aligned Organizations: A Multiindustry, Multi-perspective Analysis*, (PhD Dissertation), Hoboken, New Jersey: Stevens Institute of Technology.
99. Papp, R., and Luftman, J. (1995). "Business and IT Strategic Alignment: New Perspectives and Assessments," *In Proceedings of the Association for Information Systems, Inaugural Americas Conference on Information Systems*, Pittsburgh, PA, August 25-27, 1995.
100. Pederiva, A. (2003). The COBIT maturity model in vendor evaluation case. *Information Systems Control Journal*, Vol. 3. pp. 26-29.
101. Peterson, R. (2004b). Information Strategies and Tactics For Information Technology Governance, in *Strategies for information technology governance*, book ed. by Van Grembergen, Idea Group Publications.
102. Peterson, R. et al. (2002). "Information Technology Governance Processes under Environmental Dynamism: Investigating Competing Theories of Decision Making and Knowledge Sharing," *in Proceeding of 23th International Conference on Information Systems*.
103. Pound, J. (1995), "The Promise of the Governed Corporation", *Harvard Business Review*, 73/2 (March-April 1995): 89-98.

R

104. Rau K. E(2004), *Effective governance of it: design objectives, roles, and relationships*. *Information Systems Management* [serial online]. Fall2004 2004;21(4):35-42. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
105. Reznik S. Back to business with IT governance. *Journal of Corporate Accounting & Finance* (Wiley) [serial online]. September 2007;18(6):77-84. Available from: Business Source Complete, Ipswich, MA. Accessed July 6, 2010.
106. Richard N. Katz, Gail Salaway (2004), *Information technology leadership in higher education: The condition of the community*, 2004)

107. Robins, F., (2006), *Corporate Governance after Sarbanes-Oxley: an Australian perspective*
Source: Corporate Governance Volume: 6 Issue: 1 2006 accessed online:
<http://www.emeraldinsight.com.ezproxy.apollolibrary.com/search.htm?st1=Corporate+governance&fd1=all&mm1=all&bl2=and&st2=&fd2=all&mm2=all&bl3=and&st3=&fd3=all&mm3=all&ys=all&ye=all&search=Search&cd=sc&ct=jnl&nolog=771180&page=7> [Accessed 23 August 2010].
108. Rolich, P. (2008). *Governance: Who Needs It?*. TechDecisions, pp. 10-11. Retrieved from Business Source Complete database. [Accessed 28 April 2010].
109. Rozek, P. (2008). Putting IT Governance Into Action." *Internal Auditor* 65, no. 3 (June 2008): 29. MasterFILE Premier, EBSCOhost [Accessed July 6, 2010]

S

110. Sanchez O., A(2003). "Testing a model of the relationships among organizational performance, IT-business alignment, and IT governance". Ph.D. diss., University of North Texas , In *ABI/INFORM Global* [database on-line]; available from <http://www.proquest.com> (publication number AAT 3117275; [Accessed July 6, 2010].
111. Shakespeare M(2005). Chapter 6: Conclusions. IT Governance [serial online]. July 15, 2005;:69-71. Available from: Business Source Complete, Ipswich, MA. [Accessed July 16, 2010].
112. Shayne C Kavanagh, and Matt Suppert. (2007). We're ALL in IT TOGETHER: Aligning Technology with Business through IT Governance. *Government Finance Review*, June 1, 24-30. <http://www.proquest.com.ezproxy.apollolibrary.com/> [Accessed June 14, 2010].
113. Smith E. A *Catalyst for IT Governance. Directorship* [serial online]. September 2007;33(4):75. Available from: MasterFILE Premier, Ipswich, MA. [Accessed July 6, 2010].
114. Spitzack, H.,(2009), The development of governance structures for corporate responsibility, *Corporate Governance* Volume: 9 Issue: 4 accessed online : 2009 <http://www.emeraldinsight.com.ezproxy.apollolibrary.com/search.htm?PHPSESSID=55mp4l03q8l82ujmrqcbgl8u0&ct=all&st1=Corporate+governance&fd1=all&mm1=all&bl2=and&st2=&fd2=all&mm2=all&bl3=and&st3=&fd3=all&mm3=all&ys=all&ye=all&search=Search&cd=sc> on 1 sept 2010
115. Steuperaert D.(2009). *Innovation, ICT and the ITGI IT Governance Framework*. COBIT Focus [serial online]. January 2009;2009(1):3-5. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
116. Stoller, J. (2008). IT governance for the rest of us. *CMA Management*, 82(7), 46. Retrieved from MasterFILE Premier database.
117. Suresh, B. (2009). *IT Governance, Cooked or Not Cooked*. COBIT Focus, 2009(3), 1-3. Retrieved from Business Source Complete database.
118. Syndikus W. (2009). *COBIT as a Method for Deliberate and Emergent Strategies*. COBIT Focus [serial online]. October 2009;2009(4):13-15. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].

T

119. Thomsen, S., (2004). Corporate values and corporate governance, Source: *Corporate Governance* Volume: 4 Issue: 4 2004
120. Trites, G.. (2009). The top ten IT issues. *CA Magazine*, September 1, 20-25,27.
<http://www.proquest.com.ezproxy.apollolibrary.com/> (accessed June 14, 2010).
121. Tyler, R. (2000). Implementing COBIT in New South Wales Health. *Information Systems Control Journal*. Vol. 3. pp.30-32. US Congress. (2002). Sarbane-Oxley Act.

V

122. Van Der Zee, J. T. M., & De Jong, B. (1999). Alignment is not enough: Integrating Business and Information Technology Management with the Balanced Scorecard. *Journal of Management Information System*. Vol. 16(2). pp. 137-156.
123. Van Grembergen, W. (2001). Introduction to the Minitrack: IT Governance and its Mechanisms. In *Proceedings of the 35th Hawaii International Conference on System Sciences (HICSS)*, HICSS35.
124. Van Grembergen, W., De Haes, S., Amelinckx, I. (2003). Using COBIT and the Balanced Scorecard as Instruments for Service Level Management. *Information Systems Control Journal*. Vol. 4. pp. 56-62.
125. Van Grembergen, W., Saull, R., & De Haes, S. (2003). Linking the IT Balanced Scorecard to the Business Objectives at a Major Canadian Financial Group. *Journal of Information Technology Cases and Application*. Vol. 5(1). pp. 23-45.
126. Venkatraman, N., Henderson, J. C., & Oldach, S. (1993). Continuous strategic alignment: Exploiting information technology capabilities for competitive success. *European Management Journal*. Vol. 11(2). pp. 139-150.
127. Violino, B. (2006): "Sorting the Standards", *Computerworld*, vol.40, n. 16: 46-47.

W

128. Webb, P., Pollard, C. and Ridley, G. (2006) Attempting to define IT governance: Wisdom or folly? In *Proceedings of the 39th Hawaii International Conference on System Sciences*.
129. Weill P., Ross J., (2005) *A Matrixed Approach to Designing IT Governance*. Accessed [online]<http://www.proquest.com.ezproxy.apollolibrary.com/> [accessed June 14, 2010].
130. Weill R., & Woodham R., (2002). *Don't Just Lead, Govern: Implementing Effective IT Governance*. CISR WP, 326, Center for Information Systems, Research. Massachusetts Institute of Technology.
131. Weill, P. (2004). Don't just lead, govern: How top performing firms govern IT, *MIS Quarterly Executive*, 3(1): 1–17.
132. Weill, P. and Ross, J. (2004b) *IT Governance* (Boston, MA, Harvard Business School Press).
133. Weill, P. and Ross, J. W. (2004c) *IT Governance: How Top Performers Manage IT Decisions*

Rights for Superior Results (Boston, MA: Harvard Business School Press).

134. Weill, P. and Ross, J. W. (2004c) *IT Governance on One Page*, CISR WP, No. 349.
135. Weill, P., & Broadbent (1998). *Leveraging the New Infrastructure: how Market Leaders Capitalize on Information Technology*. Boston: Harvard Business School Press.
136. Williamson, Oliver E.(1996), *The Mechanisms of Governance*, New York: Oxford University Press, 1996.
137. Willson P, Pollard C.(2009). Exploring IT Governance in Theory and Practice in a Large Multi-National Organisation in Australia. *Information Systems Management* [serial online]. Spring2009 2009;26(2):98-109. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].

X

138. Xavier, V. (2000) *Corporate Governance: Theoretical & Empirical Perspectives* (Cambridge: Cambridge University Press).

Y

139. Yajiong X, Huigang L, and Boulton W. (2008). Information Technology Governance In Information Technology Investment Decision Processes: The Impact Of Investment Characteristics, External Environment, And Internal Context. *MIS Quarterly* [serial online]. March 2008;32(1):67-96. Available from: Business Source Complete, Ipswich, MA. [Accessed July 6, 2010].
140. Young, S., Thyil, V.(2008). A holistic model of corporate governance: a new research framework ,Source: *Corporate Governance* Volume: 8 Issue: 1 2008