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**A Comprehensive Approach for Effective Governance of IT
Case Study of Corporate IT at RTA, UAE**

Shahid Tanvir

Corporate IT Department, Roads and Transport Authority, Dubai, UAE

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Abstract

The recent economic meltdown and corporate scandals resulting in financial tsunami have reignited the debate to enforce tighter information controls, better governance and higher degree of compliance. Due to unprecedented globalization, only enterprises expected to thrive or even survive are those that follow sound business practices including effective governance of IT. In the fast paced world, technology has evolved and become pervasive like never before. The fact that IT contributes to business effectiveness, efficiency and adds value is well established. It is therefore imperative that corporate mission and strategic business goals drive the IT goals and guide technology investments. For an enterprise to be successful, the governance of IT must be driven by the enterprise governance.

This paper presents the case study of Corporate IT in Roads and Transport Authority, a leading Government of Dubai organization. The comprehensive approach in RTA for overall governance is presented. The overarching Governance Framework of IT and the frameworks it consists of are discussed for the benefit of other government Organizations. Based on the research presented in this paper, the author strongly believes that governance of IT can act as a major stepping stone in the journey towards overall enterprise governance.

Keywords: IT Governance, Governance Framework, Enterprise Architecture, COBIT, Corporate Social Responsibility.

Introduction

The internet, analyst reports, books and research publications are inundated with buzzwords such as corporate governance, IT governance, enterprise governance, business governance and so on. IT consultants use the term “governance” so loosely some times that it can be misconstrued as organizational structure alone. However, the Information Systems Audit and Control Association (ISACA) and its IT Governance Institute (ITGI) have done an excellent job in creating awareness on governance through various publications as well as a new campaign called “Taking Governance Forward” (ITGI, 2010). The topic of governance of IT has attracted the attention of researchers in the academic circles also. There are a number of research publications in the form of master’s thesis and doctoral dissertation such as (Chitambala, 2006; Perko, 2008; Leonardo, 2008) dedicated to the subject of governance in IT.

It is important to highlight the establishment of Hawkamah Institute for Corporate Governance (HICG), Dubai in 2004 by Government of Dubai that gave the much needed impetus to corporate governance in the region. Another positive development was Dubai Declaration on Corporate Governance proposed by business leaders, and policy makers from Middle East and North Africa in a 2006 conference hosted by HICG. Today, many government and private Organizations in the region are giving importance to corporate governance. Some Organizations have implemented IT governance practices and also attained some degree of maturity. Others are adopting IT

governance practices in the Organizations. The challenge is that although many reports and case studies have been published globally on corporate and IT governance such as (Haes D. & Grembergen W., 2006), (Weill. P & Ross J, 2004), (Short J. & Gerrard M., 2009), and (Haes D., Grembergen W., 2009), however, there is a lack of local case studies, especially for the public sector. This paper is a modest attempt to bridge this gap by presenting the case study of a public sector organization.

The structure of this paper is as follows. Literature review is covered in section 2.1, followed by an outline of the research methodology in section 2.2. Section 3 provides a background of RTA organization and Corporate IT. Section 4 presents the case study on RTA for enterprise governance and Corporate IT for governance of IT. Section 5 briefly mentions the initiatives implemented in Corporate IT towards Corporate Social Responsibility and section 6 covers conclusion and suggestions for further work.

Literature Review and Research

Methodology

It is important to understand the key terms related to governance used in the literature. The following section provides definitions from the various sources reviewed as part of this paper.

Key Terms and Definitions

1. Governance

As per ITGI definition (ITGI Taking Governance Forward website, 2010), governance is 'the framework, principles, structure, processes and practices to set

direction and monitor compliance and performance aligned with the overall purpose and objectives'.

Governance Framework: ITGI states that governance framework is a set of concepts, assumptions and practices that define how something can be approached or understood, the relationships among the entities involved, the roles of those involved, and the boundaries (ITGI, 2010).

2. Corporate Governance

According to Gartner (Short & Gerrard, 2009), 'corporate governance provides the structure for determining organizational goals, allocating the authority to achieve them and monitoring performance to ensure that those objectives are attained'. According to a renowned corporate leader Narayana Murthy, corporate governance is 'about maximizing shareholder value legally, ethically and on a sustainable basis while ensuring fairness to every stakeholder – the company's customers, employees, investors, vendor partners, the government of land, and the community' (Murthy, 2009, pp. 173-174).

Murthy also stated that corporate governance is 'a reflection of a company's culture, policies, how it deals with its stakeholders and its commitment to values' (Murthy, 2009, pp. 174). ITGI defines corporate governance as the governance view focusing on corporate legal and regulatory requirements. A major aspect of corporate governance deals with fiduciary and compliance duties (ITGI, 2010).

3. Business Governance

A governance view, as reported by (Source Capital, 2010), focused on business performance and concerned with periodic evaluation of a company's strategic positioning. Business governance focuses on the strength of management team, quality of operating results and overall business performance through independent trusted advisors.

4. Enterprise Governance

ITGI defines this as the governance view focusing on the overall enterprise and can be considered as the highest-level view of governance. All other views of governance must align with it [citation]. According to CIMA definition, enterprise governance constitutes the entire accountability framework of an organization. It is a combination of corporate governance (conformance dimension takes a history view) and business governance (performance dimension is forward looking) (CIMA, I. 2004).

To understand the distinction between corporate governance and enterprise governance, it is important to keep in mind the findings of CIMA (from case studies across 10 countries) that good corporate governance can prevent failures, but it does not guarantee success (CIMA, 2004).

5. IT Governance

A governance view that consists of the business governance of IT, ensuring that IT supports and enables the business strategy and the functional governance of IT, ensuring

that the IT function itself runs efficiently and effectively (ITGI, 2010).

6. COBIT

Control Objectives for Information and related Technology (COBIT), is a de-facto standard for Information Control and IT Governance by ISACA.

COBIT provides managers, auditors, and IT users with a set of generally accepted measures, indicators, processes and best practices to help maximize benefits through IT and develop required IT governance / control. Governance as defined by COBIT consists of five key elements such as strategic alignment, value delivery, risk management, resource management and performance measurement (ITGI, 2007).

7. ISO

ISO is International Organization for Standardization and publishes over 18000 standards. There are three ISO standards that will be covered in this paper namely ISO 20000, ISO 27001, and ISO 9001:2008. ISO20000 is related to IT Services Management, ISO 27001 pertains to Information Security Management System and ISO 9001:2008 is the Quality Management standard.

8. DGEP

Dubai Government Excellence Program is based on European Foundation for Quality Management (EFQM). DGEP was launched in 1998 by the Government of Dubai. DGEP has achieved tremendous success and has been reported by (Youssef, 2005) and (Elkahlout, 2010), amongst others.

9. EA

Enterprise architecture (EA) is the blueprint for defining an organization's As-Is (baseline) or To-Be (target) environment.

Perco's research (Perco, 2008, pp. 41) conclude that, EA 'consists of a framework that specifies the methods, models, tools and artefacts used in architecting the enterprise, and structures, processes and mechanisms that are used to govern and manage the design...'. According to Korhonen et al. (2009, pp. 2), EA is defined as 'a holistic, high-level approach to organizational design description and prescription'.

Research Methodology

The paper introduces key terms and definitions from cited research. Then the author briefly touches upon ISO standards (20000, 27001, 2008), and frameworks (COBIT, DGEP, EA) that constitute the governance framework of RTA, among others. The key objective of literature review was to explore and understand how these standards and frameworks were covered by other researchers in the context of IT Governance. It was equally important to research and establish if these standards and frameworks really do contribute toward overall Enterprise Governance.

To build a strong foundation for the case study, the paper defines three research questions as follows:

1. What are the business drivers for Governance of IT and why so much attention is given to this topic in the industry?

2. Why should Governance of IT be linked with an overall Enterprise Governance?
3. What is the business value from effective Governance of IT?

These questions are very important and are answered below before going into the details of the case study.

Business drivers for Governance of IT

The key reasons for growing interest in corporate and IT governance are regulations, compliance (SOX, Basel II), and laws of the land in the aftermath of financial scams (such as Enron, Lehman Brothers and WorldCom). Due to total reliance of businesses on IT, there is a growing realization that IT related risks may adversely affect the performance of an organization.

The main concerns among senior executives related to IT are as follows, as summarized in a leading consulting firm's report (NCC, 2005):

- Availability, Continuity, Quality and Reliability of IT Services.
- Total Cost of Ownership and the Return on Investment.
- Information Controls, Security and Risk to Business.

It is also important for executives to have greater control over IT for better value governance and greater alignment of IT with business. Due to prevailing economic recession, IT budgets are reduced and many IT initiatives are put on hold. Any future investment in IT must be done keeping in mind the expected business needs IT can support. Governance of IT proactively addresses the concerns of senior executives and allows them to run and manage IT as any

other strategic business unit of the organization.

Expected Benefits from Governance of IT

The IMPACT IT Governance Special Interest Group identified the following benefits from good IT Governance (NCC, 2005):

- Transparency and Accountability
- ROI / stakeholder Value
- Opportunities and Partnerships
- Performance Improvements
- External Compliance

The noteworthy findings from a recent report (ITGI, 2008) that apply to cases where IT Governance is poor or ineffective are:

- Business losses damaged reputations or weakened competitive positions
- Deadlines not met costs higher than expected and quality lower than anticipated
- Enterprise efficiency and core processes negatively impacted by poor quality of IT deliverables
- Failures of IT initiatives to bring innovation or deliver the promised benefits

ITGI report concludes that:

- IT is critical in supporting and enabling enterprise goals.
- IT is strategic to the business (growth and innovation).

Linking Governance of IT to the Enterprise Governance

According to ITGI findings published in the report (ITGI, 2008), IT is an integral part of overall enterprise governance. The need to integrate IT governance with overall governance is similar to the need for IT to be an integral part of the enterprise. Other needs for this link are as follows:

- Aligning IT strategy with the business strategy
- Cascading IT strategy and goals down into the enterprise
- Providing organizational structures that facilitate the implementation of strategy and goals
- Creating constructive relationships and effective communications between the business and IT, and with external partners
- Insisting that an IT control framework be adopted and implemented
- Measuring IT performance

According to Gartner research (Short & Gerrard, 2009), the influence of Corporate Governance is substantial on Governance of IT in the following areas:

- Disclosure and transparency — this refers to the financial and operational information of the organization and foreseeable risk factors.
- Responsibility of the board of directors — this involves ensuring strategic guidance to the organization, effective monitoring and responsibility to shareholders / stakeholders.

RTA Corporate IT Case Study

Background of RTA

Roads & Transport Authority (RTA) was established by the Government of Dubai in late 2005. RTA's mission is to prepare legislation and develop integrated solutions of road systems and land/marine transportation networks that are safe and in line with Dubai's economic development plans and the highest international standards.

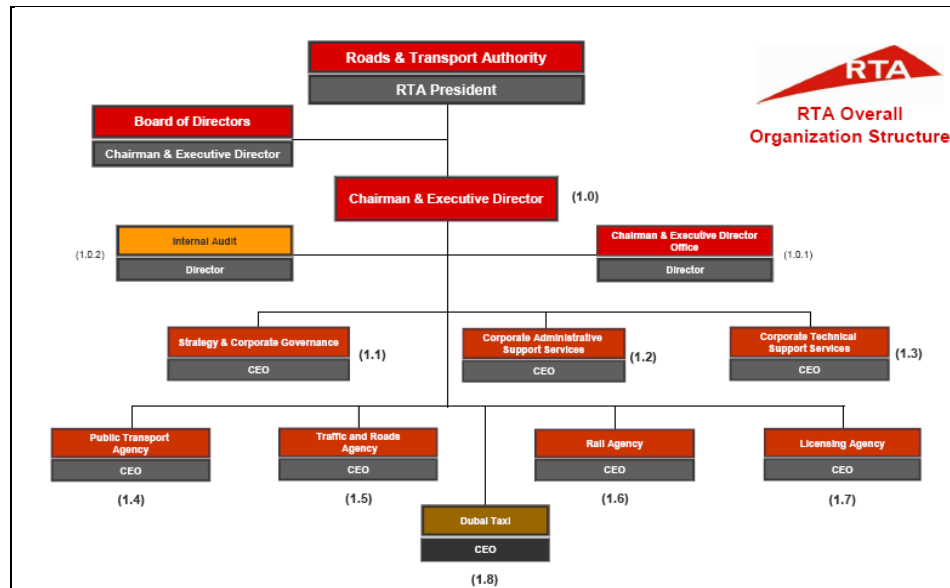


Figure 1: Overall Organization Structure of RTA. (Source: RTA)

RTA consists of three corporate sectors and five functional transport agencies united by a shared corporate vision of “Safe and Smooth Transport for all”. The sectors and agencies as shown in Figure 1 below are as follows:

1. Strategy & Corporate Governance (Sector)
2. Corporate Technical Support Services (Sector)
3. Corporate Administrative Support Services (Sector)
4. Public Transport Agency
5. Rail Agency
6. Traffic and Roads Agency
7. Licensing Agency
8. Dubai Taxi Agency

Each sector and agency is headed by a CEO and they report to the Chairman and Executive Director of RTA. RTA’s executive management recognized IT as a strategic asset for supporting critical business needs of the organization. RTA embarked on a journey of developing the key infrastructure for Dubai. RTA had to move very fast to meet

many of the deadlines and contribute to Dubai’s economic development plan. The IT Department has had to often keep pace with the rapid growth of the organization. RTA decided to engage world class IT vendors to meet the many needs and challenges related to IT. Corporate IT was very keen to leverage the industry best practices, standards, guidelines and frameworks

Corporate IT Department in RTA

The vision of Corporate IT is “The information highway that e-enables effective transport for all”. The mission is to provide leading integrated information solutions and IT services through the use of relevant technology, robust IT infrastructure, competent human resources, balanced outsourcing and international standards and processes. Corporate IT Department is headed by the Director and reports to the CEO of CTSS sector. There are six sections within Corporate IT, each headed by a section Manager as shown in the Figure 2.

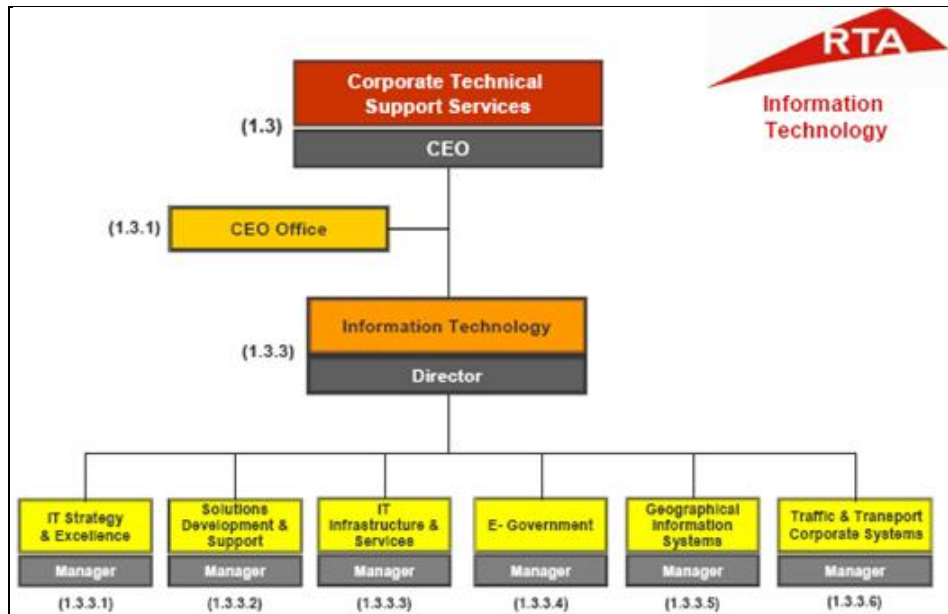


Figure 2: Organization Structure of Corporate IT Department. (Source: RTA)

Despite being a government organization, Roads and Transport Authority has been an early adopter of cutting edge technological solutions, innovative products and novel services. Corporate IT has been a leading Government of Dubai organization that leverages state of the art information and communications technology providing better customer service and achieving higher performance. RTA engaged world class IT vendors to meet the various business needs and address many challenges it faced.

Comprehensive Approach in RTA for Effective Governance

Since inception, RTA has leveraged industry best practices, standards, guidelines and engaged the services of world class partners to achieve its mission. The comprehensive approach for effective governance in RTA is depicted in Figure 3. The core strengths of RTA enterprise governance are a) Chairman and CEO, and Board of Directors of RTA providing leadership with clear vision and

mandate to excel; b) adoption of DGEF business excellence model with emphasis on transparency and innovation; c) organization structure of RTA with Agencies and Sectors headed by CEOs; d) each Agency / business unit has a certain degree of independence when making decisions to support their operations; e) corporate guidance provided by Strategy and Corporate Governance sector; and f) Support services rendered by two sectors 1) CTSS for Technical Support and 2) CASS for Administrative Services. Last but not least, Governance of IT is achieved through an overarching framework consisting of various frameworks. The details of IT Governance framework are provided in section 4.3.

Corporate Strategic Planning Leading to Corporate IT Strategy

Strategy and Corporate Governance Sector formulates the overall corporate strategy for RTA. Each sector / agency derives their strategic direction from the Corporate

Strategy. The departments within the sector/agency on the other hand are guided by their sector / agency level strategic goals and objectives. As shown in Figure 1, Corporate IT is part of Corporate Technology Support Services (CTSS) sector. Following a top down approach, Corporate IT strategic goals and objectives are linked with CTSS strategic goals and objectives which contribute towards the overall goals and

objectives of RTA. Within Corporate IT, IT Strategy and Excellence section is responsible for overall strategy planning for Corporate IT, besides other responsibilities.

Corporate IT aspires to be a leading provider of IT solutions as articulated in the Corporate IT Vision and Mission statements. The IT has set the following goals:

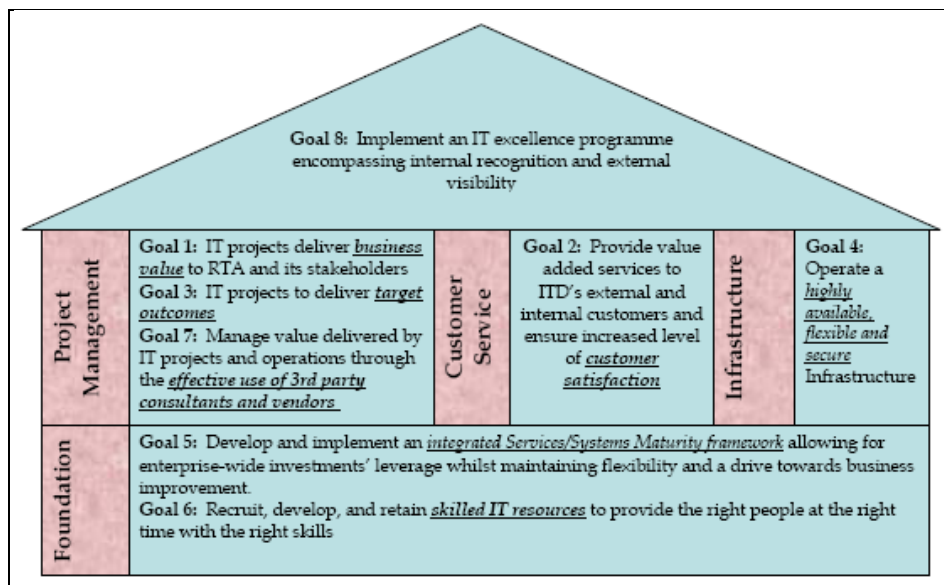


Figure 3: Goals of Corporate IT are mapped to CTSS sector goals. (Source: RTA)

Business Excellence Model in RTA

Being a Government of Dubai organization, RTA actively participates in Dubai Government Excellence Program. RTA top management is fully committed to achieving business excellence through DGEP implementation. DGEP has helped Government of Dubai transform the government and has been an astounding success story (Youssef, 2005). DGEP is customized from European Foundation for Quality Management (EFQM) with extra focus on transparency and innovation (Elkahlout, 2010). Corporate IT senior

management regularly attends DGEP training programs and encourages IT staff to attend DGEP awareness sessions conducted by IT Strategy and Excellence section. Customer satisfaction and end user friendliness is something that is very high in the agenda of senior management and sincere effort is made to create a culture among the employees, where customer comes first.

Mystery shopper initiative is aimed at inculcating these values among the RTA employees. There are anonymous surveys carried out to measure the satisfaction of

customers across the organization. RTA also takes corporate social responsibility (CSR) very seriously. RTA organized Public Transport Day, and actively participated in Earth Hour, Paper less Day. RTA also

conducts regular safety campaigns for the safety of drivers and children. RTA also conducts training programs for the taxi drivers and rewards drivers with better customer service and safe driving.

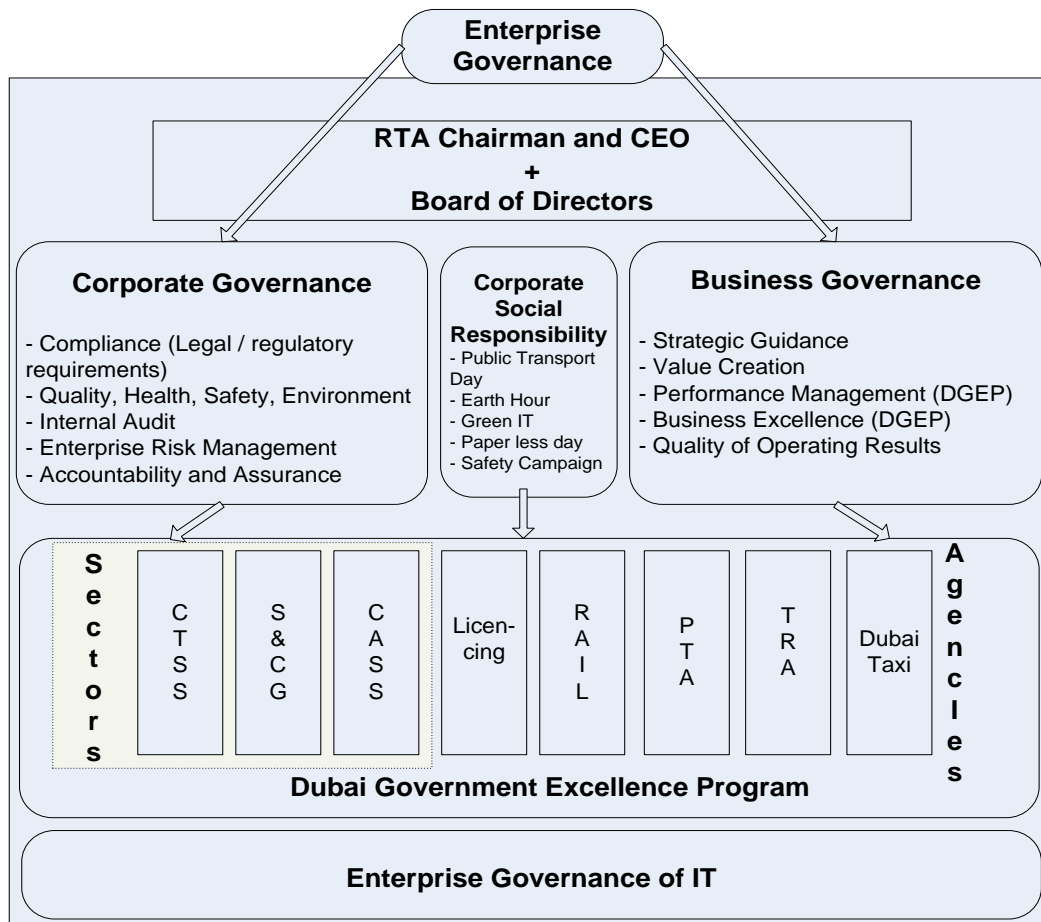


Figure 4: Comprehensive Framework for effective Enterprise Governance. (Source: RTA)

Enterprise Governance of IT

Despite being a fairly new government organization, Roads and Transport Authority has been an early adopter of cutting edge technological solutions, innovative products and novel services bringing delight to the customers of RTA and citizens of Dubai. Corporate IT has been a pioneer in using technology for innovation, better customer service and achieving higher performance. The framework for Governance of IT is an

overarching framework. The various best practices and frameworks that lead to effective Governance of IT are discussed next. EA and COBIT are discussed in sections 4.4 and 4.5 respectively.

Application Governance Framework (AGF): AGF empowers Corporate IT through a clear mandate from the Chairman of RTA to implement greater information and security controls, and bring critical enterprise

applications in compliance with corporate IT standards and guidelines. The Chairman has appointed a committee headed by top executive management with representatives from Agencies at the director and manager

levels. This sends a clear message that the governance initiative is very critical. As reported by (Hoch & Payan, 2008) mandate from top leadership forms a solid foundation for transformational change.

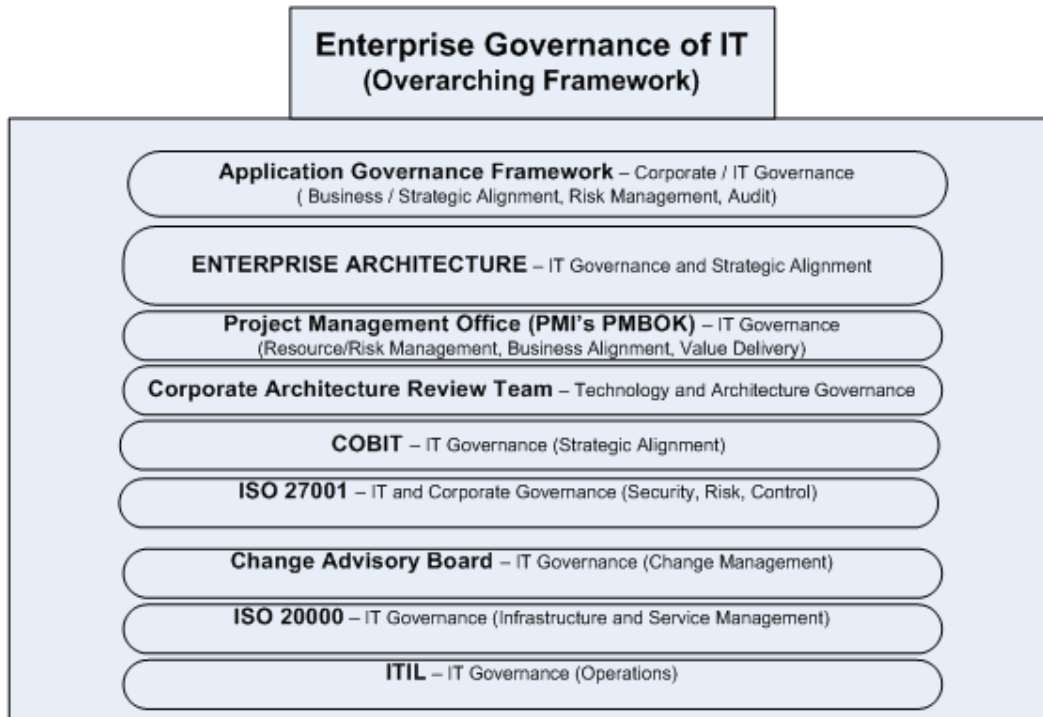


Figure 5: Overarching Framework for effective Governance of IT. (Source: RTA)

PMO: Corporate IT has established a Project Management Office and follows PMI’s Project Management Body of Knowledge for managing projects and programs. All enterprise level projects as well as agency projects are required to report to the PMO. Currently, PMO meets on a bi-weekly basis and all IT project managers are mandated to report project status.

Dubai e-Government: Corporate IT adheres strictly to the guidelines, best practices and standards imposed by Dubai e-Government in areas such as e-Government / e-Services implementations (online license renewal and

registration as an example), RTA Internet Portal, and so on. The e-Government Committee meets on a regular basis.

ISO Certifications: Corporate IT has established an Information Security Management System and received ISO 27001 certification. Corporate IT follows ITIL V3 for IT operations and received ISO 20000 certification for the IT Service Management. The Quality Management System for ISO 20000 and is maintained in a central repository. There is a corporate wide initiative to achieve ISO 9001:2008 certification as well at the corporate level,

including the Corporate IT. Some agencies such as Rail Agency have already been assessed and certified at ISO 9001:2008.

CART and CAB: Among the best practices followed in Corporate IT are two bodies - CART and CAB. CART stands for Corporate Architecture Review Team and is the custodian of Enterprise Architecture in Corporate IT. CART provides governance of technology and architecture as well as assistance. CAB stands for Change Advisory Board and is a team responsible for managing changes in the IT operations.

Enterprise Architecture Practice at RTA

Enterprise Architecture typically enables Organizations to align operation level execution and choices to overall business

value proposition. It has been reported in (Getter, 2007) and (Perco, 2008) and (Korhonen et al., 2009) that EA practice contributes toward better IT Governance. EA was established to enable RTA to implement a federated-like model while ensuring architectural alignment across the different agencies to maximize reuse and shared services value, while promoting and demonstrating business / IT alignment. Enterprise Architecture in RTA provides a comprehensive approach for developing the "virtual organizational view" which not only depicts the structure of the different components within the organization but also highlights the inter-relationships and dependencies between those different components and their contribution to the organization value proposition.

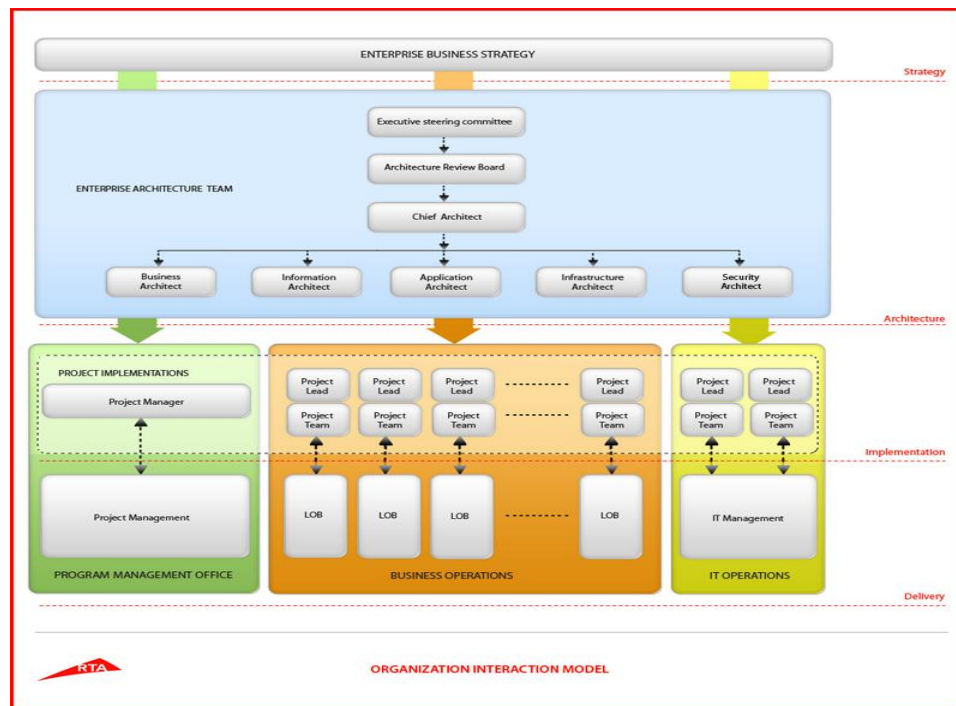


Figure 6: Structure of EA Team and its interaction with other business units. (Source: RTA)

The organization interaction model in Figure 6, describes the EA Organization Structure and its interaction with the other

organizational units in RTA. The Architecture Review Board in Corporate IT is commonly referred to as Corporate Architecture Review

Team (CART). Compliance with the EA is mandatory. The highest-level authority for EA is the Steering Committee, which is composed of the top-level decision making authority in the organization. Their intervention is limited for practical purposes but authoritative. The Steering Committee delegates to the Architecture Review Board, which includes representatives from the various lines of business and is led by the organization's Chief Architect. The Architecture Review Board oversees the architecture assurance and re-alignment process. The Chief Architect is supported by Domain Architects who are experts in various architecture domains. This includes business, information, solution and technical

architects. They provide architectural alignment guidance in the design phase of projects and are key actors in the architecture review process. Projects are initiated and supervised by the Program Management Office and assigned project teams to manage their design and implementation. CART is the custodian of EA practice, provides consulting, governance, and advisory services to senior management, RTA Project Managers and vendor teams. CART also reviews the deliverables and ensures that deliverables meet the required quality and adhere to the corporate IT guidelines, standards and industry best practices. RTA also maintains the EA portal, shown in Figure 7.

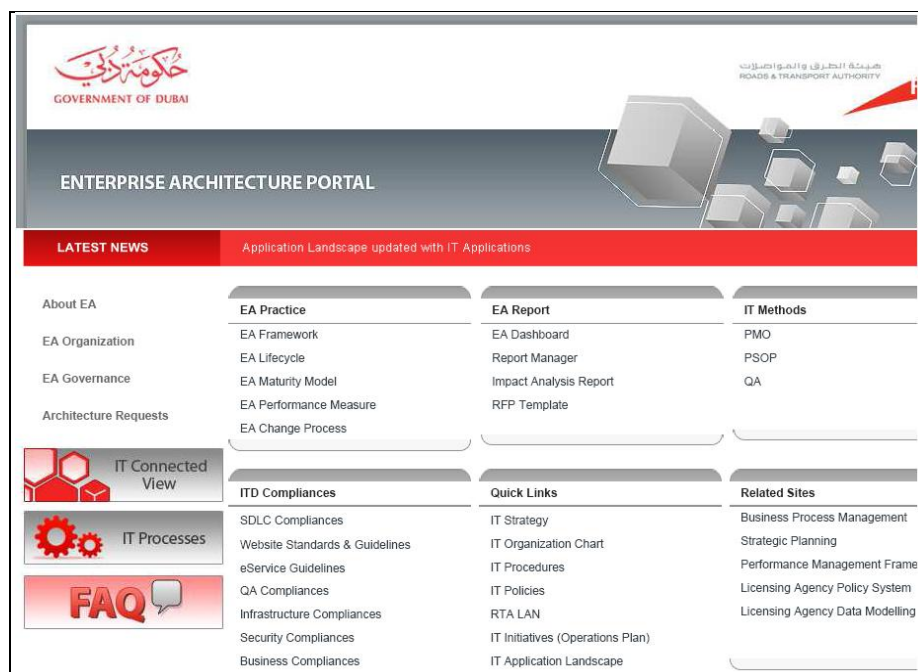


Figure 7: EA Portal showing Corporate IT site. (Source: RTA)

COBIT Implementation in Corporate IT

COBIT is being widely used in Organizations to achieve IT governance and better information controls as reported in (ITGI, 2007), (ITGI, 2008) and (Yuwono B. et al.,

2009). RTA won Best IT Governance Application Standards Award in 2009, (aligned with criteria as per COBIT), instituted by Information Technology Governance Assurance Forum, Dubai. Corporate IT took

an initiative to perform internal assessment of all COBIT processes as a continuous improvement exercise. The approach followed and maturity assessment process is shown in figures 8 and 9. As a first step, the four domains of COBIT were mapped with six sections within Corporate IT Department based on the function of the sections and process ownership out of the total 34 COBIT

processes. Next, we identified the most important 9 processes as per ISACA recommendation and circulated a questionnaire for each process to the process owner. The questionnaire was taken from ISACA and consisted of questions for each level of maturity as defined in the COBIT 4.1 framework guide.

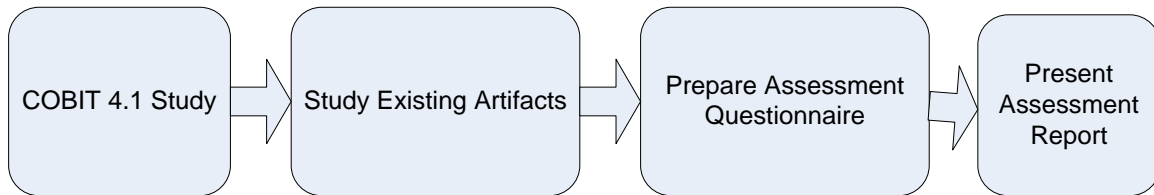


Figure 8: COBIT Assessment Approach. (Source: RTA)

A presentation on COBIT 4.1 framework was given for awareness to the Corporate IT Management and technical staff responsible for completing the assessment. The initial assessment results were shared with the management. As a second step, besides the

maturity levels defined by ISACA for each of the 34 processes, we looked for process output as evidence for the maturity of the process, as shown in Figure 9. The assessment is currently in progress.

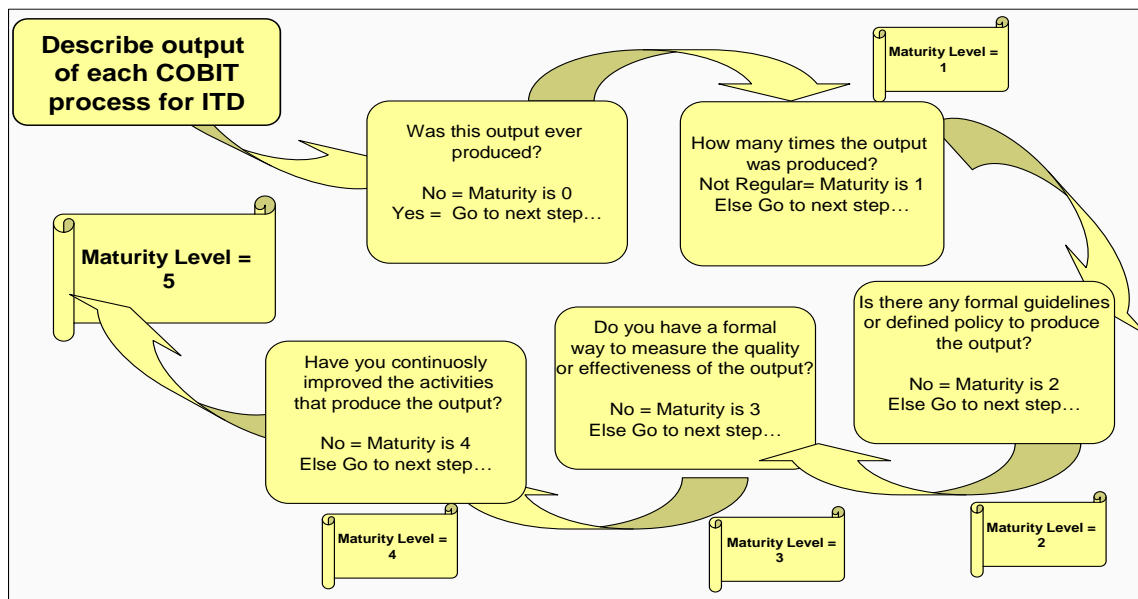


Figure 9. Process Maturity Level Assessment Model. (Source: From study by Yuwono B. et al., 2009 pp. 2-3)

Corporate Social Responsibility within Corporate IT

As part of DGEP criteria social results, many initiatives are implemented in RTA, encouraging staff to contribute to social causes and community events. At the Corporate IT level, following key initiatives were successfully implemented with the objective of fulfilling RTA's corporate social responsibility.

IT Draw a Smile: With this theme, initiated by Corporate IT Director, Corporate IT took part in events such as Back to school (gifts for small children), and Orphan Fun Day organized by Awqaf and Minor Affairs. IT also organized seminars / lectures in some universities / colleges and provided mentorship to interns during the summer training.

Green IT: Corporate IT took the initiative of reducing the Carbon Foot print of RTA through Green Data Center initiative resulting in a green environment helpful for future generations.

Power saving and CO2 Emission Reduction: Corporate IT also took the initiative to save power of the PCs and laptops through hibernation and other power management tools. Total Reduction in Co2 emission for the Annual Year Jan2010-Sep2010 was reported to be 16,904.052 kg.

Conclusions

This paper presented literature review on the topic of Governance with focus on Governance of IT. The comprehensive approach used in RTA for overall enterprise governance in general and Governance of IT in particular was discussed in detail. With the case study of RTA, it can be concluded that achieving effective Governance is a journey and not a destination. Author's experience as a member of Architecture Review Board in Corporate IT suggests that despite having various frameworks in place, senior management commitment and blessings are an absolute must for the success of governance initiatives.

A logical next step to this work would be to conduct a research in regional public sector Organizations to see how mature other Organizations are in terms of Governance of IT. The ITGI's global survey on IT Governance can be customized for this region and would be very useful in data collection and future research.