View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

provided by AIS Electronic Library (AISeL)

Association for Information Systems
AIS Electronic Library (AISeL)

CONF-IRM 2009 Proceedings

International Conference on Information Resources Management (CONF-IRM)

5-2009

Strategic information systems planning: A case in the context of United Arab Emirates

Salam Abdallah
Abu Dhabi University, salam.abdallah@adu.ac.ae

Fayez Albadri
Abu Dhabi Marine Operating Company, falbadri@adma.ae

Follow this and additional works at: http://aisel.aisnet.org/confirm2009

Recommended Citation
Abdallah, Salam and Albadri, Fayez, "Strategic information systems planning: A case in the context of United Arab Emirates" (2009). *CONF-IRM 2009 Proceedings*. 22.
http://aisel.aisnet.org/confirm2009/22

This material is brought to you by the International Conference on Information Resources Management (CONF-IRM) at AIS Electronic Library (AISeL). It has been accepted for inclusion in CONF-IRM 2009 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

22. STRATEGIC INFORMATION SYSTEMS PLANNING: A CASE IN THE CONTEXT OF UNITED ARAB EMIRATES

Salam Abdallah
Abu Dhabi University
salam.abdallah@adu.ac.ae

Fayez Albadri
Abu Dhabi Marine Operating Company
falbadri@adma.ae

Abstract
Strategic Information Systems Planning (SISP) is increasingly regarded as critical to help business organizations decide their preferences and priorities that are pertinent to IS&T investment, and to ensure that the adoption of such technologies will culminate in tangible business gains and drive value creation for competitive advantages. This study is part of a much wider scoped-research that is concerned with SISP in UAE organizations. The objective of this explorative research is to provide insights on the SISP implementation processes in one of the organizations in the UAE. Future studies would follow to examine multiple organizations and to evaluate the effectiveness of SISP on the organizations performance and to track success factors, strengths weaknesses, processes, methods, techniques, and tools that practitioners are adopting.

Keywords
SISP, culture, case study

1. Introduction
Strategic information systems planning (SISP) is a concern for both IT and business managers. SISP is a cyclic process to identify a range of information systems applications and related infrastructure to act as an enabler to drive business strategies for value creation (Lederer & Sethi, 1988, Philip, 2007; Pricewaterhouse, 2008). IT strategic planning is usually in the top 10 IT management concerns for the past two decades (Philip, 2007).

Examining the IS literature we find little evidence on the use and influence of SISP in the Arab world. The research question therefore arises "How do IT managers go about SISP and in particular for organizations in the United Arab Emirates (UAE)". This research and subsequent studies are focused on the UAE, which is becoming a highly industrialized region with GDP reaching US$ 190 billion. According to a research firm IDC report, IT spending in the Gulf region is expected to exceed US$ 9 billion in 2008 with United Arab Emirates being the second largest market for IT spending after Saudi Arabia (IDC n.d).

With such large investment, it is important for managers to know if such investment is creating value for the stakeholders. We contend that planning and specifically SISP is the critical stage that may decide how IT should be spend to drive value creation for competitive advantages. This study is considered as a stepping stone for other subsequent research that aims to gain insights on the awareness or practices of SISP in the context of UAE. The objective of this explorative research is to provide insights on the SISP implementation processes in one of the organization in the UAE. Future studies would examine multiple organizations and evaluate the effectiveness of SISP on the organizations performance and to track success factors, strengths weaknesses, processes, methods, techniques, and tools that practitioners are adopting.

2. SISP

The concept behind strategic information systems planning is to provide technology to support the organization's business strategy and with the intention of leveraging the existing infrastructure for effective deployment and to guide future IT acquisitions (Boynton et al., 1987; Earl, 1993, Mentzas, 1997). Earl (1993, p.1) argues SISP should address the following areas: a) Aligning investment in IS with business goals; b) Exploiting IT for competitive advantage c) Directing efficient and effective management of IS resources d) Developing technology policies and architectures.

Earl argued that the first two areas are concerned with information systems strategy, the third with information management and the fourth with information technology strategy. Lederer et al. (1988) had also argued that SISP is a way to determine a portfolio of IS/T infrastructure to meet business objectives as declared in their business strategy. The process of planning is a complex task involving high degree of dependency between the major business processes and technologies. Mentzas (1997) argued that although there are many formal methodologies to assist in the planning, problems still exist in three areas: a) need for integration SISP with the overall corporate strategy b) moderate practical utility of existing SISP methodologies c) limited management involvement and commitment to the SISP. Mentzas (1997) had proposed a generalized strategy planning approach as a foundation for developing SISP and as way to overcome these problems. The approach consists of five phases, namely, strategic awareness, situation analysis, strategy conception, selecting strategy, planning strategy implementation. Another commonly used approach to planning was proposed by Premkumar (1991), which is based on the input of information and resources, that is later translated to a set of strategic plans and when implemented produces certain outcomes. Regardless of the methodology, Synnott and Gruber (1981) argued that the outcome of the SISP endeavor is usually a plan that includes; a) IS mission statement; b) IS objectives; c) linkage of the IS objectives to organization goals; d) IS action plan for achieving IS objectives; e) assignment of specific tasks to specific individuals or units; and mechanism(s) for management control, feedback and reporting. Being general and encompassing, Mentzas's approach is used to analyze the case in this study. Although SISP should be comprehensive to be effective, Newkirk et al (2003) argued that both too much and too little implementation planning could have an opposite effect on SISP success. Newkirk study revealed that at the implementation phases need more planning than the early stages.

Developing strategies is not enough; Teo et al. (2001) have argued that one of the major problems in IS planning is translating strategies to action plans. Hartono et al. (2003) have argued that managers should plan for implementation by explicitly including actions in the plan, in order to avoid wasting valuable resources. The plans should also include identifying resources and change management and organization structuring (Baker, 1995). Furthermore, Brown (2008) had also argued the need for consideration for not only internal factors but to also external factors which may have the greatest impact, which can make" a well formulated plan obsolete and impractical". Brown et al. (2008) were referring to external business environment and external IT environment.

3. Case Study: The Gulf Utility Group

As mentioned earlier, this case is part of a wider study that will investigate SISP adoption and use in the UAE. This initial study was based on an interview with a senior executive who was heavily involved in the development of a strategic plan at Gulf Utility Group. The senior executive was later asked to write a reflective diary to explicate on the drivers, approach and processes adopted in the course of developing their IS&T strategic plans. The case attempts to provide a comprehensive insight of the experience. The case will be later discussed in the light of the case events and in relation to the previously stated objectives.

3.1 Background

Arabian Gulf Utility is a major producer and supplier. Since its inception in the mid 90s, the group's senior management has driven a focused vision to ensure that the group adopts best utilities business practices and accepted privatization as a vehicle to provide an efficient, trouble free and cost-effective environment. Achieving this end, meant commitment to restructuring the business by upgrading the existing infrastructure, and aiming to ultimate automation, in a systematic and phased manner. This has culminated in the identification and implementation of improvements in several areas, and exploring others for potential improvement. These initiatives translated into realities by implementation of numerous state-of-the-art technology-based projects affecting all aspects of the group's business processes, viz., operational, technical and manpower resources. The case below is sectioned according to Mentzas (1997) five phases of the IS strategy process.

3.2 Strategic Awareness

In accordance with the commitment to effect positive changes through the adoption of new technologies, senior management has desired that a formally documented business driven IS&T strategy and plans, be developed reflecting the group's vision and objectives for such purposes.
The IS&T strategy and plans should augment existing capabilities while identifying and promoting new IT opportunities. They should reflect and clearly manifest the alignment of services and support functions with that of the group's mission, goals, business objectives and functional processes. They should also identify and promote the IT investments and initiatives necessary to support effective management and achieving business objectives.

On assignment to achieve the above task, the planning group within the IT department has prepared the following:

- Approach for the development of IS&T Strategy.
- Identified the business owners (taking into consideration Industry prints / best practices processes).

- Prepared the questionnaires for conducting interviews to gather the IT needs of different Divisions/Companies.
- Adopted a common reporting mechanism to consolidate the information gathered during the above interviews with the business owners.

In consideration of the business environment, IS&T Strategic planning has become critical to the group's business over the past few years as a prelude to major changes and revamp warranted due to various internal business drivers and/or external factors including technological development. These include; (1) the globalization-linked pressures imposed on the organization; (2) the complexities associated with the fast expansion of the business; (3) the availability of diversified new technologies and the pace of change in information technologies; (4) the emergence of Enterprise Resource Planning (ERP) integrated business solutions of strategic nature and (5) the wide acceptance of the Internet and web based applications. The main deliverables of the IS&T strategy development project included the following documents; (1) IS&T Strategy and Vision; (2) Technical Architecture; and (3) IS&T Plans

.

3.3 Situation analysis

A standard IS&T strategy development methodology assumes a clear and up-to-date 'Business Strategy' in place as a pre-requisite to resume any IS&T strategic planning. In the absence of a well defined 'Business Strategy' per-se, it has become crucial to adopt a suitable approach tailored for the group. The adoption of a suitable approach followed a close investigation of the effectiveness and suitability of conventional methodologies to the business, environment and specific features of the group. However, the approach benefited from best of practices and features of standard and commercial IS&T strategy development methodologies. Additionally, continuous review and monitoring constituted an important component of the adopted approach to ensure its effectiveness and suitability and to ensure proper alignment of investments to the group's business requirements and technology investment bottom line.

As illustrated in Appendix (A) the adopted approach was mainly concerned with providing a road map to guide the planning, execution and control activities needed to achieve the main deliverable (indicated above) throughout the project life phased out as follows:
Phase 1 – Preparation and Planning
Phase 2 – Implementation (Data Collection and Analysis)
Phase 3 – Documentation Signoff and Control
Phase 4 – Plans Implementation and Review

Details of phases' activities as proposed by the adopted approach are provided in Appendix (B).

The main features of the adopted approach were:
(1) Comprehensive in scope, covering all the group's processes and functions
(2) Integrated to existing group's quality standards, policies and performance indicators
(3) Flexible to accommodate future changes based on variables affecting the strategy planning
(4) Continuous over the life cycle of the IS&T plans and
(5) Change-conscious, with guidelines for a variety of educational, awareness and programs that help plan and manage threats, concerns risks and employees resistance to change. It also promotes interaction between business systems, technology and people.

The definition of the business processes and functions was initially executed by mapping the group's function from the organization chart to the utility processes as using a standard 'SAP-

Utilities Business Processes' template. However, at a later stage, for practical reasons, it was decided to take a different approach to identify the business process functions using the approved organization charts to identify all group's divisional function followed by an exercise to Identify and validate processes and functions specific to group subsidiaries

Department heads and managers were accepted as the business process and functions owners for representing their respective business requirements and to participate in the interviews and complete the questionnaire as part of the data collection exercise. The business owners for different business areas were identified and invited to take part in the data collection component of the IS&T strategy development project.

The main questionnaire (Appendix C) was divided into different sections and was designed to extract the maximum user-related information, by collecting useful data related to the 'As Is' business process and functions, current problems, issues and concerns and improvements through application of new IT technology, applications or initiatives.

Nearly fifty managers from different group' divisions and subsidiaries were interviewed by members of the team as part of the data collection phase of the IS&T strategy development. The interviews included a brief introduction of the purpose and scope of the strategy development initiative followed by detailed explanations on each topic in the questionnaire prior to its completion. The interviews were of relaxed interactive nature where, business and technical problems, issues, visions and useful ideas where shared and documented. The team also seized the opportunity to apprise management about the current status of Global IT vis-à-vis the group's proposed activities to upgrade its infrastructure. The audiences were generally very receptive and positively acknowledged benefits of automated working environment.

Subsequently, Interviewees were asked to rate the importance and priority of a number of listed IT applications and systems to their business and to suggest when such systems be deployed. Other systems or applications proposed by the interviewees have been added.

The findings from the interviews with managers and department heads within the group and subsidiaries were consolidated in a report that outlines all the important relevant data to be used for analysis purposes in developing the IS&T Strategy and Plans, such as:

a. A statement of the scope of the process/ sub process / function
b. Internal and external dependencies
c. Currently installed systems and tools
d. Current problems, issues and areas of concern
e. Performance indicators
f. Areas of potential improvement
g. Priority / Importance to business rating of IS&T systems and solutions

The results from all interviews were consolidated in the 'IS&T strategy development matrix' containing a variety of information related to the IT projects and initiatives and their perceived importance by the different business functional areas. The information in the matrix was to be used later in the analysis stage as basis for producing the final IS&T strategic plans. A copy of the matrix is attached to Appendix (D).

3.4 Strategy conception

The speed of changes in technology makes short term IS&T planning difficult and medium to

long term IS&T planning almost impossible, nevertheless, it is possible to overcome this constraint by combining a good insight of the business goals and an analytical outlook to technology trends in a context of investment in information assets.

The proposition here was to benefit from the standard investment analysis tools used in asset acquisition and management. This was conveniently justifiable to view and treat IS&T products (hardware, software, and data) as corporate assets of special environment and features. Yet, like any other type of assets they have a life span, they depreciate in value, they incur operation and maintenance costs over life cycle and it is relatively easy to have them profiled for condition, performance, criticality and risk exposure.

On this premise, rules, standards and tools of asset planning, acquisition and management were considered applicable to investment in IS&T and used in the analysis stage:

- Environment analysis (business, planning, financial, information, technical)
- Criticality Analysis (To business)
- Performance / Condition Analysis
- Risk Analysis
- Financial Analysis (Cost savings and Return on Investment)

The data collected in interviews and through the completion of the questionnaires has been consolidated in a matrix to be used as the bases for a three-year IS&T Plan. In order to project the information in the rating matrix into the IS&T Plans, the processing of data was only made possible by making some assumptions, introducing dependency adjustment weights, and incorporating other useful information that can be used conveniently in planning process.

The 'Priority Rating Matrix' held information such as; business area or division, IT project priority & ranking (1= High, 2=Medium, 3=Average, 4=Low), IT initiative Priority & Ranking (1= High, 2=Medium, 3=Average, 4=Low), dependency factors weightings (1-3), deployment time (1-5 years), Status (E=Under Evaluation, P=Planned, A=Approved, S=Started) and Stakeholder (Responsible division)

The pace of technology changes makes it difficult to have confidence in the reliability of medium to long term IS&T planning. However, joint efforts of both IT and business user population and using a valid technology trends model was helpful in tracking IT trends and predict the future. This represents the basic ingredients to build a diversified technical portfolio that protects business investment in IT becoming obsolete or irrelevant.

The technical architecture component of the IS&T strategy seeks to specify the technical infrastructure standards and the guiding rules in the acquisitions, investment and management of IS&T assets. Such standards were based on the consideration of internal and external factors and was guided by a simple technology trend model that helps to profile the 'As Is' and the 'To Be' technology profiles within the organization. The main objective was to draw a reasonable balance between the following three different categories of the IS&T technologies to enable us to combine the benefits of applying new technologies without excessive costs or high risk:

- **Trailing edge technology:** older than 5 years, still viable, older software requires older hardware to run, hardware is very expensive to maintain, older programs are harder to modify, older data structures are not easily turned into information, the software development backlog problem
- **Bleeding edge technology:** latest innovations (6 months to 2 years old), relatively expensive

but has potential for great cost savings due to productivity improvement, high risk due to its instability, complex- not properly understood or applied, unavailability

- **Leading edge technology:** stable but new 1 - 5 years old, popular amongst major portion of the industry segment, cost effective, hence cannot lag behind, possesses low risk, availability of experts

The 'Technical Architecture' analysis has adopted as a target of the different technology categories the following technology mix: Trailing Edge Technology (15%), Leading Edge Technology (70%) and Bleeding Edge Technology (15%)

3.5 Strategy formulation & implementation

3.5.1 IS&T Strategy & Vision

The main IS&T strategy & vision is summarized as the "*group's commitment to continue to build a secure, reliable and flexible technical infrastructure, and to invest in a portfolio of corporate integrated, best of breed systems and information assets on the basis of current business requirements and a three-year projections to cater for changes in the business environment, goals and objectives and the availability of new alternative technology, with a strong focus to adopt most feasible tools to help the group's excel in supporting business processes, functions and users"*.

The realization of the vision & strategy is related to a clear definition of the IS&T investment principles and the environment features, which were clearly documented.

3.5.2 IS&T Technical Architecture

- The Technical Infrastructure Portfolio: The group's commitment to continuous improvement of the current technical environment is matched by appropriate provisions for alternative options through investigation of new emerging bleeding edge technologies. The following technologies are identified as having potential improvement to the group's IT function, will be investigated as alternative technologies with view to have a balanced portfolio of infrastructure technology (trailing, leading and bleeding edge technologies): eXtensible Markup Language (XML)**,** Web Services**,** Peer-To-Peer (P2P)**,** Learning Content Management Systems (LCMS)**,** Corporate Universities and Learning Portals**,** Knowledge Management**,** Linux and open Operating systems**,** Wireless Computing**,** Security (Single sign-on, Encryption)**,** Network Computing and Thin Clients**,** Data Warehousing (Database marketing**,** Multicast Network, VPN (Access to remote users), E-mail Filtering application, Intrusion detection system to monitor the network, Convert applications to browser based www.citrix.com, Use MSN messenger functionality through exchange

- **Standardisation**: The foundation of the strategy is an enterprise-wide adoption of a set of customary, proven, fit for purpose technologies and standards. Standardisation is sought in the following areas: Operating Systems (Desktop), Corporate Business applications (OS), Corporate Business applications (Databases), Corporate Business applications (Interfaces)

- **Acquisitions**: The strategy provides guidelines to acquisitions related to the following; Software Packages and Business applications, Vendor / Consulting Services, Hardware (Client), Hardware (Servers), Network Active Components

- **Security and Disaster Recovery**: "Security is of highest priority". It is the vision to ensure the continuity of business by maintaining a secure IS&T environment. The group plans to adopt effective security policies and procedures and to invest in proven state-of-the-art, security technology tools to minimise risks of loss or damage of the IT infrastructure and /or information assets, including data integrity, network, software and hardware. Disaster recovery complements an overall approach of security and risk management program to ensure business continuity in cases of major information assets loss.

- **Internet, Network and Multimedia**: The group shall take full advantage of the convergence of data, voice and video networks and to effectively tilize and use Internet and web enabled applications to support the business and users. As such, the group shall adopt the necessary measures to establish a robust, secure, highly scalable and resilient network infrastructure to cater for current and future requirements.

- **E-Business**: The group shall adopt a series of visionary E-Business initiatives to bear the benefit of wide audience access to a catalogue-like websites and portals, to explore ways to make use of the Internet Technology.

- **Change Management**: The pace of change of technology and the group's vision to accommodate all IS&T initiatives and projects to elevate itself to the best in utilities business, will lead to major changes in its environment. Because of its impact on the business and people, the group shall adopt and implement a comprehensive change management program in order to stabilise and smoothen the interaction of business, technology and people.

The management of change shall include a comprehensive assessment of the nature of changes and their impacts. This will cover a variety of programs that need management commitment, such as: Change resistance management analysis, Identification of Success Factors and performance indicators, Team Building, Educational and awareness programs, Business Process Re-engineering, Media / Communication, Interaction, End-User Training, Technical Training and Career Development.

3.5.3 Three-Year IS&T Plans

One of the main deliverable of the IS&T strategy development project is a three-year prioritized plan of IT projects and initiatives based on the potential contribution to the group's business and are based on the priorities defined by the business owners. (**Appendix** E). The implementation of the IT projects and initiatives included in the three-years plan will be controlled through 'Performance Management' facilitated through tracking progress and reporting performance indicators such as (actual / planned) work.

4. Discussion

The illustrative case demonstrates that there is preliminary evidence that organizations do follow a strategic planning process. The case clearly spells the different phases of SISP as proposed by Mentzas (1997).

The purpose of the ***awareness phase*** according to Mentzas(1997) is to acknowledge the need of strategy formulation and determine the direction of the organization and its competition. The case does explicitly states the need for strategy and plans to reflect the organization vision and

objectives, which is followed by stating a direction to reach that endeavor by identifying 4 essential tasks and five business and technological drivers for adopting a IS strategic plan.

The ***situation analysis*** is the second phase that is related to the business, organizational structure and IT issues and taking into consideration internal and external environment factors (Brown, 2008). The Gulf Utility in this phase, have encountered their first problem, which is the absence of 'Business Strategy'. To address this problem the case mentions that they adapted a method based on conventional methodologies and best practices. The intricacy of the method is illustrated in Appendix (A) and consisting of four phases illustrated in Appendix (B). In this stage business processes and functions were identified using organizational charts, also in this stage business owners were identified to take part in the data collection using questionnaire (Appendix C). Data collected were related to business processes and functions, current problems, issues and concerns and improvements including applications of new IT technology, application or initiatives. The data collection was comprehensive involving interviews from fifty representative managers. Managers were also asked to rank the priority of IT applications and systems from a given list and they were also given the opportunity to suggest other new application and systems. The outcome of this phase is interesting since it sets the direction of the strategic plan, for convenience they are listed again below:

- A statement of the scope of the process/ sub process / function
- Internal and external dependencies
- Currently installed systems and tools
- Current problems, issues and areas of concern
- Performance indicators
- Areas of potential improvement
- Priority / Importance to business rating of IS&T systems and solutions

Another useful outcome of this phase was the development of a matrix (Appendix D) cross tabulating a range of information related to IT projects and initiatives and their perceived importance. The matrix served as map to produce the IS&T strategic plan.

Following the data collection from interviews, the case entered its ***strategy conception*** phase. This phase involved strategy thinking, analytical component of strategic decision-making, analytical that also included the search for opportunities for competitive and performance advantages. Mentzas had suggested that in this stage to use critical success factors, what-if analyses, cross impact analysis, scenario evaluation methods. The organization in this case mentioned the use of rules, standards and several tools to assist them on decisions appropriate to technical architecture investments. Their approach had resulted in categorizing the technologies into three areas as way to safeguard against excessive costs or high risks. The case does not explicitly highlight success factors, however, the five points mentioned under situation analysis may be viewed as a set success of factors that was used to guide the organization in developing the strategic plan.

The strategy formulation phase related to issues such identifying functional models of information flow of business processes, organizational model of responsibilities and hierarchies, IT architectures, communications methods, security concerns, cost and maintenance aspects. Also at this stage new projects and priorities needed to be also identified. The case clearly defined three deliverables as the outcome of this phase

(1) The 'IS&T Strategy & Vision' document as a "management perspective", detailing the vision for a five-year business driven investment in "automation and Information Technology". It defined the investment principles in the IS&T environment to ensure that such ventures in IS&T was aligned to business vision and goals. It concentrated on the information assets investment and the environment in which the information assets were managed.
(2) The 'Technical Architecture' document included a record of adopted technical and infrastructure standards based on technology trends. It also set the guidelines for future IT/IS investments to provide effective support to the business of the group. The organization had also identified the need for security and disaster recovery, new projects were identified such e-business.
(3) The 'IS&T Plans' document; a three-year plan that defined all information technology initiatives and projects of high priority to the business of group. The priority ratings reflected the business process owners' perception of importance to their business, see Appendix (E).

The case did not identify flow of business processes and had no mention of organizational model of responsibilities and hierarchies. Such information may have been communicated through the matrix that was mentioned earlier.

The final stage '***strategy implementation planning'*** is probably the most critical one, which takes the deliverables from previous phase and converted into action plans. The given case does not provide any information related to this phase. As mentioned earlier, this may seem to be a common problem (Teo et al, 2001) i.e. falling short of translating strategies to action plans- a necessity to avoid wasting resources (Hartono et al., 2003).

5. Implications and Limitations

This study has a number of implications. The details illustrated in the case can be used as a baseline to further assess other organizations adoption and use of SISP. This baseline would be refined taking into account emerging prevalent factors as we examine other organizations. The case can also be insightful for practitioners who are involved in SISP, to learn how other organizations in their local context engage in SISP. The case has also educational implication. Students in this region can be exposed to the processes of how really organizations initiate and implement SISP in the UAE rather than Western context.

This study provides evidence that SISP (formal or informal) is being practiced within UAE organization. The case may be seen as a call for further research in this field to gain better understanding of SISP adoption and use in the UAE.

The limitation of this study is that data collection was based from one individual who championed the process. Although, the senior executive provided us with in-depth understanding to the situation, other stakeholders can provide different perspective especially on the challenges and barriers when conducting SISP. Such limitation will be taken into account in future studies.

6. Conclusion

The high investment of IT and the lack of literature on SISP in the United Arab Emirates, was the motive of this study. A rich case was illustrated and analyzed in light of Mentzas's approach. The case reveals SISP is being practiced locally (UAE) and it is comparable to western approaches. The study calls for further research in this area to nuance specific practices, factors and cultural differences

References

Baker, B., "The role of feedback in assessing information system planning effectiveness. Jouran of Strategic Information Systems", 4(1): 61-80, 1995.

Boynton, A. C., and Zmud, R.W., "Information technology planning in the 1990: Direction for practice and research", MIS Quarterly 1(1): 59-71, 1987.

Brown, Irwin, "Investigating the impact of the external environment on strategic information systems planning: A qualitative inquiry", Proceedings of the 2008 annual research conference of the South African Institute of Computer Scientists and Information Technologists, South Africa, 2008.

Earl, M. J., "Experiences in strategic information systems planning", MIS quarterly, 17(1): 1-24, 1993.

Edward Hartono , Albert L. Lederer , Vijay Sethi , Youlong Zhuang, "Key predictors of the implementation of strategic information systems plans", 34(3): 41-53, 2003.

IDC (n.d.) http://www.idc.com/getdoc.jsp?containerId=IDC_P336

Lederer, Al. L., and Sethi, V., "The implementation of strategic information systems planning methodologies", MIS Quarterly, 12(3): 444-461, 1988.

Mentzas, G.N. "Implementing an IS Strategy - A Team Approach", Long Range Planning, Vol. 30(1): 84-95, 1997.

Newkirk H.E.1; Lederer A.L.; Srinivasan C. "Strategic information systems planning: too little or too much?", 12(3): 201-228 (2003).

Philip, George, "IS strategic planning for operational efficiency", Information Systems Management, 24(3): 247-264, 2007.

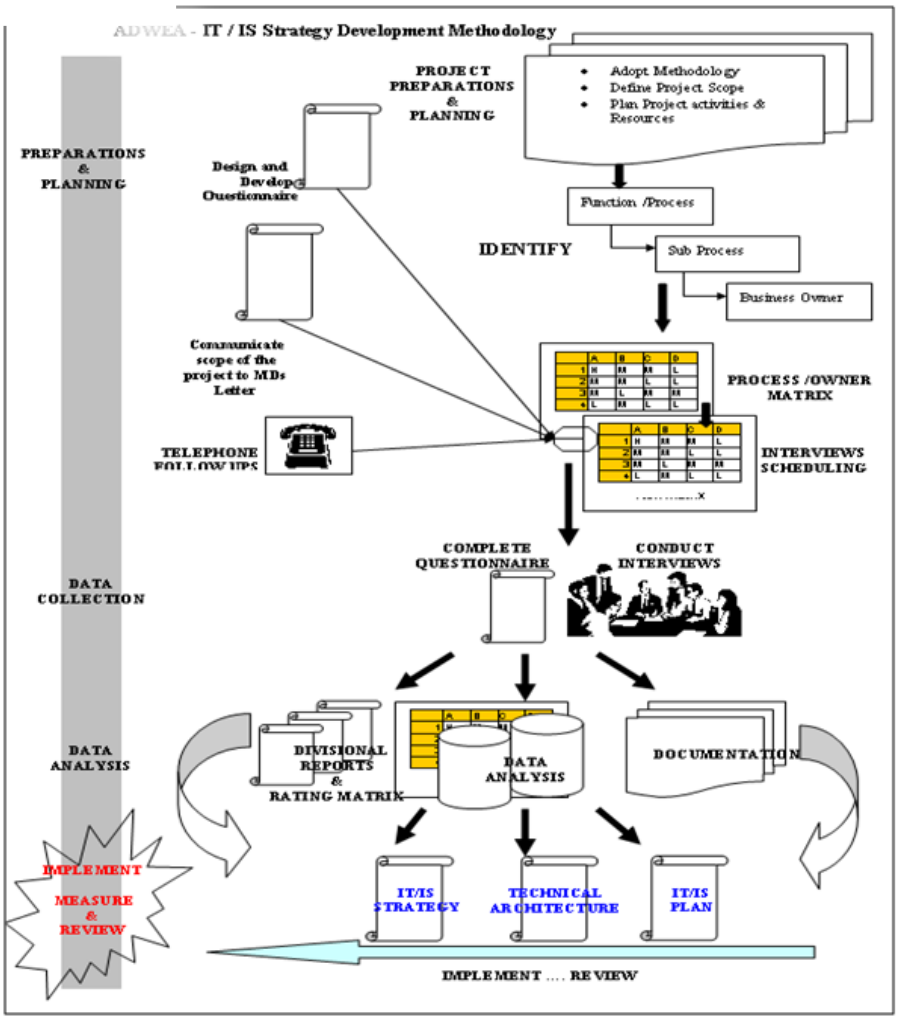
Premkumar, G. and King, R. William, "Assessing strategic information systems planning", Long Range Planning, 24(5): 41-58, 1991.

PricewaterhouseCoopers, "Why isn't IT spending creating more value?" (2008), Accessed November 2008: http://www.pwc.com/Extweb/pwcpublications.nsf/docid/9E5FE9283CE22B87852574630070C3B0

Synnott, W. R. and Gruber, W. H., "Information resource management", New York, 1981

Teo, T.S.H, Ang, J.S.K, "An examination of major IS problems". International Journal of Information Management, 21: 457-470, 2001.

APPENDIX (A) IS&T Strategy Development Approach



APPENDIX (B) The main phases activities of the IS&T Strategy Development approach

Phase 1: Preparations and Planning Phase

This phase follows management briefing for the need to develop an IS&T Strategy. It is treated as a project in terms of defining deliverables, time-scale and assigning a team with defined roles and relationships. The phase includes the following activities: Adopt Methodology / Approach, Define Scope ,Define Terms of Reference, Identify and mobilise Resources , Plan Activities and Resources, Identify the group's and subsidiaries, Business Processes & Functions (BPF), Identify BPF Owners, Complete Process / Owner Matrix, Design & Develop Questionnaire, Communicate Project Scope to MDs and seek BPF owners' commitment, Schedule interviews with BPF Owners

Phase 2: Data Collection and Analysis Phase

Phase Two is concerned with collecting data through user interviews with the BPF owners, completing a questionnaire and conducting a variety of data analysis. The phase includes the following activities: Design & Develop Questionnaire, Conduct Interviews with BPF owners, Complete Questionnaires, Review and consolidate findings, Discuss findings with management , Perform Qualitative and Quantitative analysis, Complete Business Function / IT Initiative Priority Matrix, Interview IT Managers to specify technical infrastructure standards and technology trends using, Priority Matrix and a technology trend model., Produce Long Term (Five-Year) IS&T

Vision& Strategy , Produce Technical Architecture Strategy, Produce Short Term (Three-Year) IS&T Plan (Projects & Initiatives)

Phase 3: Documentation, Signoff and Control Phase

Phase Three is concerned with the process to produce, review and control the IT/IS Strategy Document. The phase includes the following activities: Build Document Outline, Finalise document contents, Release draft document for review, Signoff the IS&T Strategy

Phase 4: IS&T Strategy Plans Implementation Phase

Phase Four is concerned with the implementation of the IS&T Strategy and plans. The phase includes the following activities: Adopt technical architecture strategy in investments, Implement IT initiatives, Implement IT, Projects, Measure Performance, Review Plan

APPENDIX (C) IS&T Strategy Questionnaire

Confirm scope and major functions	

Relevant Industries?	**G**		**D**		**T**	**A**	

Sub-Process

1	**Business owners:**

2	**Exisitng Systems & Tools:**

3	**Business Goals:**

4	**Problems, Issues & Concerns:**

Process 1. Engineering & Projects
Sub-Process 1.1 Engineering Design & Planning

5	**Dependencies:**	
5.1	Company:	
5.2	Department:	
5.3	Process / sub-process:	

6	**Improvements:**	(identify and rate)
6.1	Documentation:	
6.2	Integration:	
6.3	Management reports & Analysis:	
6.4	Workflow:	

6.5	Procees re-engineering:	
6.6	Training:	
6.7	others:	

7	**Success Indicators**	(identify and rate)
7.1	Performance:	
7.2	Condition, Criticality:	
7.3	Reliability:	
7.4	Quality:	
7.5	Efficiency:	
7.6	Speed:	
7.7	Customer service:	
7.8	Cost:	
7.9	Others:	

8	**IT initiatives:**	(identify and rate)				
	MAXIMO		EDMS		SCADA / Telemetry	
	Oracle Financials		GIS		Fleet Management	
	HRMS		CRM		Support magic	
	Oracle Projects		CBT		CITRIX	
	Billing		RCM		Oracle Production	
	Mobile warehousing		HRMS		Oracle Treasury	
	Meter Reading		EIS		Risk Management	
	Portal - E Commerce		DMS		Timesheets	
	Disaster Recovery		WF		Administration Tools	
	Facility Management		FMS		Internet & Multimedia	
9	**Other Initiatives:**					

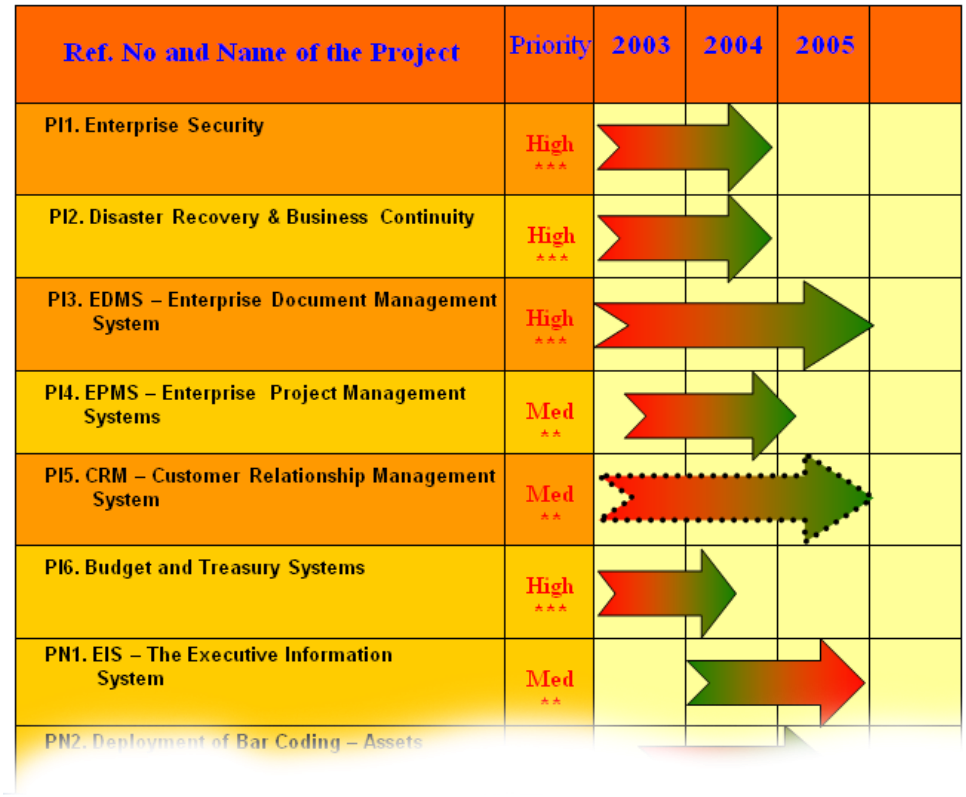
APPENDIX (D) View of IT Strategy Development Rating Matrix

IT Strategy Development Rating Matrix

IT Projects

Proposed Projects	IT Division	Supply Division	Projects Directorate	Planning & Development Directorate	Privatisation Directorate	Research	Fiannce	Human Resources	HSE	Operations & Maintenance
Security Policy	Yr.1,2	Yr.1					Yr.1	Yr.1,2,3	Yr.1,2	
Disaster Recovery	Yr.1,2,3	Yr.1					Yr.1	Yr.2,3		
EDMS	Yr.3,4,6	Yr.2,3,4,5	Yr.1,2,3	Yr.2,3,4	Yr.2,3,4	Yr.3,4,5	Yr.1,2	Yr.1,2,3	Yr.1	Yr.1,2
Inetrnet/intraner/Portal	Yr. 3,4,5	Yr.2, 3,4,5	Yr.3,4	Yr.3,4,5	Yr.2	Yr.1,2		Yr.3,4	Yr.1,2	Yr.3
EIS	Yr.3,4,5			Yr.1,2,3	Yr.2			Yr.2,3		Yr.2
Project Management System/ Finance payment processing			Yr.1,2		Yr.1,2,3		Yr.1,2	Yr.4		
SCADA/Telemetry/EMS Spider						Yr.2,3				Yr.3
LDC Disaster Recovery										

IT Initiatives / activities

Proposed IT initiative / activity	IT Division	Supply Division	Projects Directorate	Planning & Development Directorate	Privatisation Directorate	Research	Fiannce	Human Resources	HSE	Operations & Maintenance
Oracle Application Tool: Budget Tools	Yr.1	Yr.1	Yr.2	Yr.3			Yr.1	Yr.2		
Email: ADWEA & Companies & External access / workflow		Yr.3,4		Yr.1,2	Yr.1		Yr.1	Yr.1		
CITRIX	Yr.1,2						Yr.1			Yr.1
Management Reporting tools	Yr.3,4,5	Yr.2	Yr.1,3	Yr.2,3	Yr.2		Yr.1,2	Yr.1,2,3		
Business Continuity								Yr.1,1		
MAXIMO Training		Yr.1	Yr.1,2			Yr.1	Yr.1	Yr.1		Yr.1
MAXIMO Workflow		Yr.2								Yr.1,2

APPENDIX (F) IS&T Three-Year Projects Plans