Best Practices of IT Budgeting

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1. Executive Summary

IT Budgeting is an important subject for IT managers and CIOs around the world. This importance comes from its' being a decisive factor in the success of the IT department by ensuring that sufficient financial resources are available for the sustainability and the growth of the IT department and its services.

A **Budget** is defined as an itemized forecast of an organization's income and expenses for a futuristic period. The budget can be structured in many ways based on the organization's (or the country's) standards.. One of the widely adopted approaches for structuring the budget is to build the budget on the basis of two main categories:

- **Capital cost:** concern the purchase of assets intended for long-term use within the organization
- **Operational cost:** day-to-day costs that are not associated with tangible production resources

The **Budgeting Process** is the process of ensuring that the correct finance is available for the provision of IT Services and that during the budget period they are not over-spent. The budgeting process is a cornerstone of the IT Financial Management process which is responsible for the identification, calculation, monitoring and onward allocation of costs for the IT Services.

The budgeting process is split into two separate but related processes; **setting the budget** and **monitoring the budget.** The process of setting the budget is mainly concerned with preparing the budget for the coming fiscal year or period. The process of monitoring the budget is concerned with ensuring that the budget of the current fiscal year is spent properly. Monitoring the budget is also concerned with foreseeing and reporting any deviations from the allocated budget.

It is important to establish the **governance** of the IT department over all IT-related budgeting in the organization; this is the only way to establish full accountability on the IT assets and resources. In more practical terms, no department should be allowed to allocate IT-related cost in their budgets. Departments must request any IT spending from the IT department. Without achieving this, IT departments will not be able to control IT assets in the organization.

In the **Government of Saudi Arabia**, each governmental organization is requested to follow the standard budget structure and its guidelines for reporting their yearly budget. The standard budget structure is meant to be generic in order to cater for the different needs of the government departments regardless of their nature.

However, it is noted that currently there are no clear IT-related categories or elements in the budget structure of the Government of Saudi Arabia. This fact creates difficulties for the government organizations in allocating the IT budget properly and tracking the IT spending. For example, hardware items such as personal computers and laptops are normally placed under *Element 221* of the *Second Category* which concern furniture and office equipments.

These issues should be addressed on the highest levels to update the budget structure in a way that serves the purpose of properly setting and monitoring IT Budget.

There are some key success factors that facilitate the budgeting process and help the department in allocating sufficient budget for the fulfillment of its goals and objectives:

- **Having a long-term IT strategy:** an IT strategy reflects thoughtful decisions that are made based on experience and long term commitment rather than reactive and random decisions

- **Alignment to the business requirements:** this does not happen without making the effort from the IT department to properly align with the business, not just by fulfilling its requirements but even to become a success factor and an enabler for the business

- **Defining success measures and performance indicators:** When success measures and performance indicators are set and reporting on them becomes a habit then budgeting for the future becomes easier and more appreciated since it is built on tangible facts that reflect the true state of the organization

- **Succeeding in previous budgets:** there is nothing more helpful in negotiating the budget than showing that the previously obtained budgets were utilized successfully

- **Continuous and stable growth:** reflecting continuous and stable growth in each budget period will reflect stability and maturity in the IT department and show that expansions are made based on determined and well-studied plans

2. Introduction

This document provides guidelines / recommendations on how to go about developing and monitoring the IT budget. It will help with an overall organizational budget as well as with a budget for a specific project. It includes methods for estimating costs as well as tips for ensuring that the budgets are successful

2.1. Purpose

The purpose of this document is to provide guidance for IT managers / Directors in preparing the budgets of their departments.

The document targets the IT managers / Directors as the main audience, because they make the decisions regarding the budgeting.

This document is based on best practices; it is greatly inspired by the Financial Management component of the IT Infrastructure Library (ITIL) which represents a widely accepted best practice of IT Service Management (and soon to become ISO standard – ISO 20000).

2.2. Document Structure

This guide aims to help effectively meet the challenge of constructing and monitoring budgets in IT departments, it has been written as clearly as possible to help the reader gain the most comprehensive understanding possible.

The document can be navigated from one related subject to another, simply by clicking on the hyperlinks on the main dashboard. The main sections of this document are:

- **Financial Management for IT Departments:** a general description of the concept of Financial Management for IT from best practices perspective
- **What is a Budget:** basic definition of what a budget is, and what is the meaning of budgeting process
- **Why to Budget:** the benefits gained from budgeting, an the disadvantages of not-budgeting
- **Elements of a Successful Budget:** describes the anatomy of a budget in terms of how is the budget organized, what are the items that appear in an IT budget, and what are the properties of these items
- **The Budgeting Process:** describes the budgeting process in details
- **Practical Approach – Budget in the Government of Saudi Arabia**
- **Methods of Budget Estimation:** describes two famous methods of budget and cost estimation that are deployed and used widely by IT organizations
- **Success Factors:** provides some guidelines and advices for successful budgeting

3. Financial Management for IT Departments

IT Services are usually viewed as critical to the organization. The increase in user numbers, demand for new technologies and complexities of systems has frequently caused IT Services costs to grow faster than other costs. As a result, organizations are often unable or unwilling to justify expenditure to improve services, or develop new ones, and IT Services may become viewed as high-cost or inflexible.

IT managers are often faced with questions about the poor quality of IT services compared to their cost, or about the justification for the large budget spent on a certain service, or about the reasons behind the failure in providing a certain critical service. They often do not succeed in providing persuasive answers to such questions; their answers are often "we are doing the best we can with the money that we have.." or "surprises always happen.." or "we faced many challenges that we could not control within the forecasted budget.." which they often do not succeed to prove.

To understand whether an IT organization is doing the best that it can and to demonstrate this to its customers, it has to both understand the true cost of providing a service and manage those costs professionally. To do this, it is usual to implement IT Accounting and Budgeting processes and often to implement Charging processes as well, these processes are the main building blocks of the IT Financial Management.

IT Financial Management is the sound stewardship of the monetary Resources of the organization. It supports the organization in planning and executing its business objectives and requires consistent application throughout the organization to achieve maximum efficiency and minimum conflict[1].

Financial Management is responsible for the identification, calculation, monitoring and onward allocation of costs for the IT Services. By creating cost awareness, Financial Management influences the behavior and perception of the business owners (senior management in government departments) to the true cost of providing IT Services and optimum usage of available funds.

IT Financial Management within an IT organization or department is visible in three main processes[2]:

- **Budgeting** is the process of predicting and controlling the spending of money within the organization and consists of a periodic negotiation cycle to set budgets (usually annual) and the day-to-day monitoring of the current budgets
- **IT Accounting** is the set of processes that enable the IT organization to account fully for the way its money is spent (particularly the ability to identify costs by Customer, by service,

[1] ITIL Definition – IT Service Delivery Book v1.0 – published by The Stationary Office for OGC (Office of Government Commerce – The United Kingdom) - 2001

2 ITIL Definition – IT Service Delivery Book v1.0 – published by The Stationary Office for OGC (Office of Government Commerce – The United Kingdom) - 2001

by activity). It usually involves ledgers and should be overseen by someone trained in accountancy

- **Charging** is the set of processes required to bill Customers for the services supplied to them. To achieve this requires sound IT Accounting, to a level of detail determined by the requirements of the analysis, billing and reporting processes

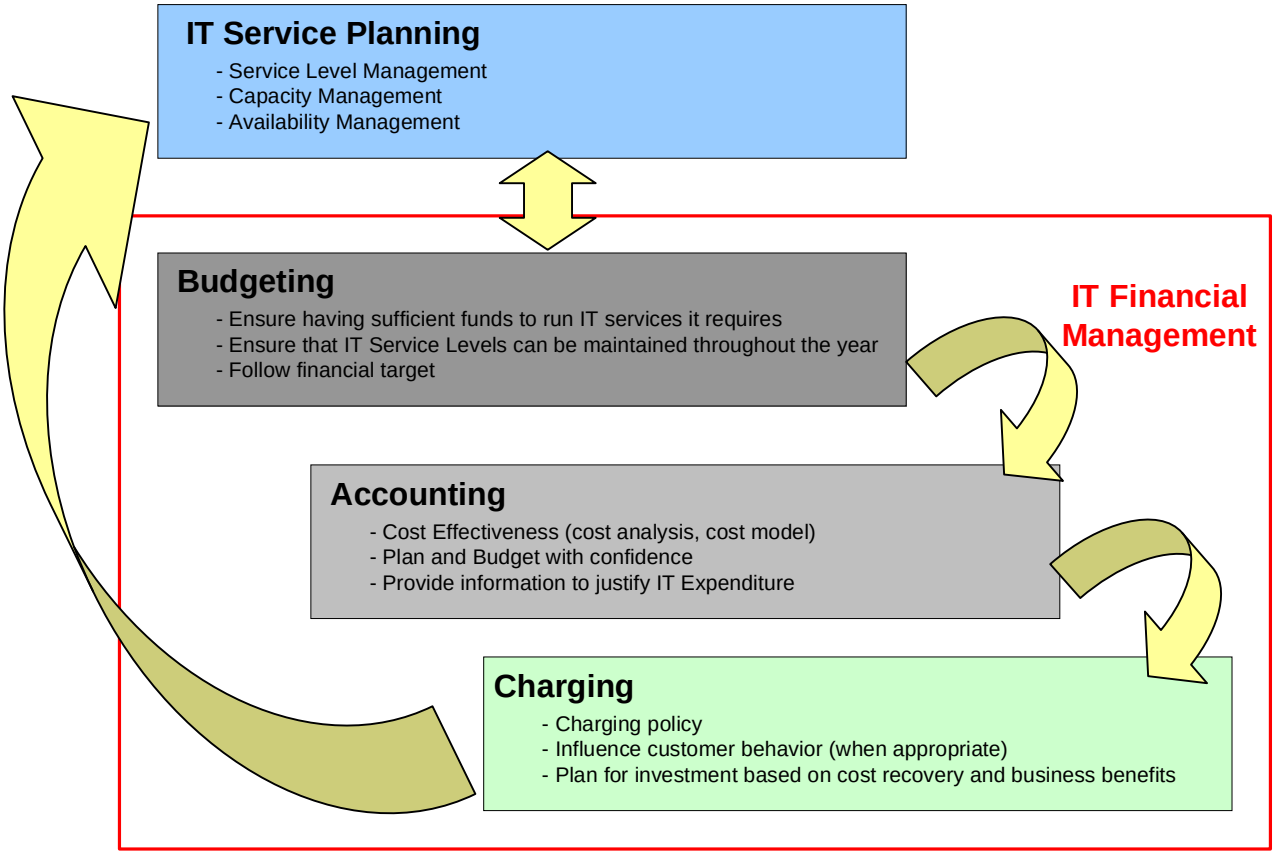

Figure 1 IT Financial Management and its relation to IT Management

4. What is a Budget

A Budget is defined as an itemized forecast of an organization's income and expenses for a futuristic period.

It is a tool for allocating resources and implementing strategic plans. It charts a way of allocating and maximizing the use of resources and, ideally, identifies financial problems that could arise in the coming year.

The Budgeting Process is the process of ensuring that the correct finance is available for the provision of IT Services and that during the budget period they are not over-spent. It is also the means of delegating control and monitoring performance against predefined targets[3].

Budgeting can be split into two main activities, **Setting the Budget** and **Monitoring the Budget**.

Setting the Budget

In most organizations the budget is set on an annual basis. This activity covers forecasting what financial resources IT will require in the forthcoming year.

IT spending can be classified in three key areas:

- Strategic Development – These are IT development initiatives and projects which are aligned to (and often essential for) the organization's strategic plan (such as launching a new service)
- Tactical Development – These are IT development activities designed to make the organization more effective and/or efficient in its ongoing operations (such as expansion or improvement of current services)
- On going spending – This is the cost of running the existing IT services

Monitoring the Budget

All organizations need to monitor the actual amount of money spent against the forecast. Any significant changes to the forecast need to be examined and actions taken.

Changes to forecast can happen for a number of reasons, such as unexpected changes in business volume or false budget forecast assumptions. Monitoring the budget is key requirement to ensure that such cases are highlighted and resolved in the right manner and time.

[3] ITIL Definition – IT Service Delivery Book v1.0 – published by The Stationary Office for OGC (Office of Government Commerce – The United Kingdom) - 2001

5. Why to Budget ?

In the public sector, budgeting is more of an assignment than an initiative; governments normally mandate the individual departments to report their budget requirements for the next fiscal year. The individual departments in their turn mandate their sub-departments to report their budget requirements for the coming year in order to integrate in the department's budget requirements.

However, there are several advantages for the IT department commitment and participation in the budgeting process. The main advantages of Budgeting are:

- Determine the costs of IT services
- Identify and classify the cost structure
- Fairly allocate the costs to IT services provided to internal and external customers
- Take a business-like approach to decisions on IT services and the related investments
- Provide more information to support expenditure, for example by showing the costs of avoiding
- Support and monitor the strategic development in the IT department based on measurable financial targets
- Enhance the relation between the IT department and the other business units in the organization by showing the real cost and value of IT services provisioning
- Provide indicators for evaluating the IT department performance and give the staff goals to reach and steps to achieve them
- Force the IT department to look at itself, set priorities and narrow its choices

While committing to budgeting carries a number of benefits for the IT department, not budgeting would expose the department to a number of problems:

- Adopting responsive attitude to external factors
- Lack of visibility of the real cost of IT
- Failure to demonstrate the real value of IT for the organization
- Unstructured costing that is hard to estimate and monitor

For a budget to be effective, it is important to consider the possible issues that may result from or while budgeting. These may include:

- The presence of controls may limit creativity
- Because there are so many unknowns at the time when the budget is prepared, the natural tendency is to emphasize cost control
- A budget is not always easy to implement and may not always be accepted as realistic by the management staff

6. Elements of a Successful Budget

As defined above, a budget is an itemized forecast of an organization's income and expenses for a futuristic period. Thus, a budget is expected to be clear, cut to the point, and simple sheet or list of itemized costs and expenses. Any supporting material or complex calculations that can accompany this brief sheet can be provided separately.

This section aims to describe the anatomy of a budget in terms of how is the budget organized or structured, what are the items that appear in an IT budget, and what are the properties of these items.

6.1. Budget Structure

The budget can be structured in many ways based on the organization's (or the country's) standards and method of budgeting. One of the mostly adopted approaches for structuring the budget is under two main categories; **capital cost** and **operational cost**.

Capital Costs Elements (CAPEX)

Capital costs concern the purchase of assets intended for long-term use within the organization, some examples of capital cost elements are illustrated in the table below:

Table 1 Capital Cost Types and Elements in an IT Budget

Cost type	***Cost elements***
Hardware	CPUs, Storage, peripherals, WAN, LAN, Workstations, laptops, PDAs, Consumables…
Software	Operating Systems, Database Management Systems, Application Servers, Web Servers, Mail Servers, Packaged Applications, Homemade Applications, Monitoring Applications, Security Applications…
Accommodation	Furniture, Storage Areas…
External Services	Outsourcing Services

Operational Costs Elements (OPEX)

Operational costs are day-to-day costs not associated with tangible production resources[4]. Operational costs are typically relative to the size of the IT department as well as its capital costs; i.e. the larger the department and its provided services are the larger its annual operational cost should be. Some examples of operational cost elements are illustrated in the table below:

Table 2 Operational Cost Types and Elements in an IT Budget

Cost type	***Cost elements***
Hardware	Hardware maintenance contracts, leasing
Software	Software support contracts, recurrent license cost
Accommodation	Offices, area rental
External Services	Utilities (electricity, water, gas…), physical security services, connectivity, Stationary… etc
Human Resources	Salaries, training, travel …
Support	Call center, help desk…

Often, a certain initiative includes mixture of capital and operational cost elements; for example, a new portal project will include sever cost elements including procuring hardware, software license, connectivity, administration and operations, support.. etc.

For more information about the techniques of identifying the cost of IT services and assets please refer to section 9.1 which discusses the concept of Total Cost of Ownership. “Appendix I – Practical Example of Budget Allocation” below provides practical example for setting the budget and allocating the cost elements according to the structure described above.

[4] IT Service Management Introduction – first edition – published by The IT Service Management Forum (itSMF) - 2002

6.2. Budget Properties

Properties of the capital and operational budget elements are estimated differently; while operational costs are estimated based on the time interval the capital costs are calculated as fixed numbers and are subject to depreciation.

The following tables illustrate examples of capital and operational budgets and their different elements and properties:

Table 3 Sample Capital Budget Estimation Sheet

Cost centre *cost centre name* **Cost centre code** *cost centre code*				
Service	**Expenditure Item**	**Purchase Date**	**Depreciation Period (mnths)**	**Cost**
Application 3	*Unix Server*	*Month 6*	*36*	
Network	*Network Expansion*	*Month 3*	*72*	
	Network Monitoring To	*Month 6*	*72*	
Security	*Firewalls*	*Month 2*	*48*	
	Biometric System	*Month 4*	*48*	
Hardware Totals				
Application 2	*Software*	*Month 3*	*36*	
Application 5	*DBMS*	*Month 5*	*48*	
Sys. Monitoring	*System Monitoring Too*	*Month 3*	*48*	
Software totals				
Accommodation	*Office Furniture Renew*	*Month 3*	*48*	
Accommodation	*Security Gate*	*Month 2*	*60*	
Accommodation Totals				
Application 3	*Consultancy Service*	*Month 2*	*12*	
External Services Totals				
Total				

Table 4 Sample Operational Budget Estimation Sheet

Cost centre *cost centre name* **Cost centre code** *cost centre code*															
Cost Type	**Service**	**Cost Element**	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**	**M7**	**M8**	**M9**	**M10**	**M11**	**M12**	**Total**
Application Support	*Application 1*	*Support*													
	Application 2	*Support*													
	Application 3	*Support*													
Network Support	*Network Support Tool*	*Support*													
Call Center	*Application 3*	*Support*													
	Application 4	*Support*													
Support Totals															
Software Licences	*Application 1*	*Software*													
	Application 2	*Software*													
Software Maintenance	*Application 1*	*Software*													
	Application 2	*Software*													
Software Totals															
Hardware Maintenance	*Application 1*	*Hardware*													
	Application 2	*Hardware*													
Hardware Totals															
Offices	*Office Rental*	*Accommodation*													
	Office cleaning	*Accommodation*													
	Stationary	*Accommodation*													
Data Center	*Land Rental*	*Accommodation*													
	Car Parking	*Accommodation*													
	A/C Maintenance	*Accommodation*													
Accommodation Totals															
Utilities	*Electricity*	*Ext. Services*													
	Water	*Ext. Services*													
	Gas	*Ext. Services*													
Physical Security	*Data Center*	*Ext. Services*													
	Back-up site	*Ext. Services*													
Connectivity	*ADSL - Office*	*Ext. Services*													
	ADSL - Data Center	*Ext. Services*													
	Back-up - Data Center	*Ext. Services*													
	Dial up	*Ext. Services*													
Ext. Services Totals															
Manpower	*Main Office*	*Human Rsrcs.*													
	Data Center	*Human Rsrcs.*													
	Back-up Site	*Human Rsrcs.*													
Training	*On-site Technical*	*Human Rsrcs.*													
	Off-site Technical	*Human Rsrcs.*													
	Manegerial	*Human Rsrcs.*													
Travel	*Travel*	*Human Rsrcs.*													
Human Rsrcs. Totals															
Totals															

Operational Budget is normally estimated in relation to the period of the budget (e.g. the estimated cost of connectivity for 12 months). Another good practice in operational budget development is to show the amount of the budget consumed for the previous budget period to show consistency and justify the increase required (e.g. the cost of connectivity for last year was ***X*** and the estimated cost of connectivity for this year is ***X+y***).

Capital Budget is normally estimated as a one-time cost (e.g. the cost of purchasing a certain system is ***X***).

An important factor in the capital budget estimation is the estimation of the depreciation period; Depreciation is the measure of the wearing out, consumption or other reduction in the useful economic life of a fixed asset, whether from use, passage of time, or obsolescence through technological or market changes[5].

One of the easiest and mostly-used depreciation calculation methods is linear depreciation, which diminishes the value of an asset by a fixed amount each period until the net value is zero. For example if a certain asset's depreciation period is 5 years and its price is ***X*** then its price is estimated at the end of the first year to be ***X – X/5***. The depreciation period is different and dependent on the type of the asset; e.g. the depreciation period of operating systems is different from depreciation period of network components of computer hardware.

[5] ITIL Definition - – IT Service Delivery Book v1.0 – published by The Stationary Office for OGC (Office of Government Commerce – The United Kingdom) - 2001

7. The Budgeting Process

As defined in section 4, the Budgeting process is the process of ensuring that the adequate finance is available for the provision of IT Services and that during the budget period they are not over-spent. It is also the means of delegating control and monitoring performance against predefined targets.

The budgeting process is split into two separate but related processes; **setting the budget** and **monitoring the budget**. The process of setting the budget is mainly concerned with preparing the budget for the coming fiscal year or period while the process of monitoring the budget is concerned with ensuring that the budget of the current fiscal year is spent properly and foreseeing and reporting any deviations from the budget. Of course each process is considered as an important input for the other as illustrated in the figure below and as described in the processes descriptions in the coming sub-sections.

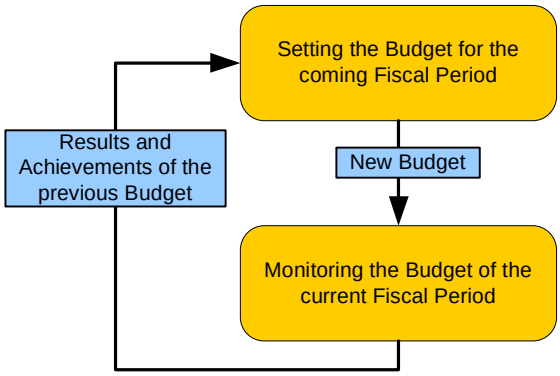

Figure 2 Relation between Setting and Monitoring the Budget

This section describes the budgeting process in details. To establish a clear description, the process will be defined in terms of its basic properties[6]:

- Process scope and objectives
- Roles and responsibilities
- Process input
- Process activities
- Process outcomes[7]

[6] These are the major properties of a process, this method of describing processes is well known and widely known by IT professionals, similar approach for process documentation is used in ITIL documentation

[7] Another aspect of the process is identifying its key performance indicators which is not fit for the level of this document and can be detailed for each department on its own

7.1. Setting the Budget

The process of setting the budget is mainly concerned with preparing the budget for the coming fiscal year or period.

Process Scope and Objectives

The process of setting the budget covers all the activities related to forecasting the budget, reporting the budget, and ensuring that the budget is approved and designated to the IT department. In terms of affected part of the organization, it is imperative that the budgeting process covers all the activities and services provided by the IT department in the organization, including both capital and operational expenditures.

The main objectives of the process of setting the budget are:

- Forecasting and estimating the cost of IT services provisioning in the organization for the next fiscal period
- Preparing the budget of the next fiscal period
- Reporting the prepared budget to the organization's management to include in the organization's budget
- Ensuring approval for the reported budget

Roles and Responsibilities

Setting the budget requires soliciting the input of every member in the IT department, hence every member of the IT department shares a level of responsibility in this process. However, the senior management of the IT department are accountable for making sure that the budget is set properly and approved.

Process Owner: IT Manager / Director

The manager or director of the IT department is the owner of the budgeting process. The responsibilities of the IT Manager/ Director include:

- Initiate the process in accordance to the organization's finance department
- Work with the sub-departments' managers on establishing the goals of the department during the coming budget period
- Ensure that the IT department members are properly engaged in the process by providing sufficient input in timely manner
- Oversee the process implementation and extend support to the other members of the department
- Provide guidance and control to the process and its outcomes based on the strategic priorities of the department and the designated targets
- Review and approve the prepared budget before reporting to the finance department of the organization
- Support the budget and ensure its approval by the organization and higher authorities (e.g. the Ministry of Finance)

IT Budget Coordinator

The IT Budget Coordinator is designated by the IT Manager to ensure that the budget is set properly in the right time and format. The budget coordinator's responsibilities include:

- Plan, organize and coordinate the budget to successful completion
- Solicit and log input from the sub-departments regarding their budget requirements, and ensure that this input is provided in the right format and time
- Prepare the budget based on the solicited input in the right format and time, and ensure its review and approval internally
- Report to the IT Manager on the progress and ongoing activities during the process
- Support the budget and ensure its approval by the organization and higher authorities (e.g. the Ministry of Finance)

The IT Budget Coordinator is not required to be from financial background but having knowledge in finance especially in the financial regulations of the organization is a definite plus. It is also recommended that the budget coordinator be a middle-level employee and not a head of any sub-departments to avoid conflicts of interest. The IT budget coordinator must be reporting directly to the IT Manager during the process of setting the budget.

Heads of the IT Sub-departments

The heads of the sub-departments of the IT department are responsible of ensuring that the IT services are provided properly, hence they are required to report their sub-departments' budget requirements and ensuring that sufficient budget is in place to support the success of their sub-departments' objectives. The responsibilities of the heads of sub-departments in the process of setting the budget include:

- Work with the IT Manager on establishing the goals of the department during the coming budget period
- Identify programs and activities to achieve the designated goals and provide their budget requirements in the right format and time
- Negotiate their budget requirements internally with the IT Manager and the IT Budget Coordinator and ensure that their budget requirements are approved and integrated in the IT budget
- Provide supporting material to prove their requirements when needed

The Finance Department of the Organization

The finance department of the organization eventually integrates the IT Budget in the Organization's budget and ensure that this budget is in place:

- Receive the IT Budget from the IT Budget Coordinator and ensure that the IT Budget is provided in the right format and time
- Discuss and negotiate the IT Budget with the IT Manager and IT Budget Coordinator and ensure that it will suffice for approval
- Support the budget and ensure its approval by the higher authorities (e.g. the Ministry of Finance)

IT Coordinators from other Departments

In some cases, coordinators are nominated from other departments within the organization to provide their departments' requirements of IT resources and services in the coming fiscal year, those coordinators are considered actors in the process of setting the budget. However, it is important to keep in mind that the final decision must be for the IT department to prioritize these requirements and to decide if the IT department can provide these requirements within its budget boundaries.

Process Input

The process of setting the IT budget is influenced by different factors including (but may not be limited to):

- The IT Strategic Plan of the organization, which in its turn is influenced by the organization's strategic plan[8]
- Business plans of the IT department, the sub-departments, and the individual initiatives and projects
- Results and achievements of the previous budgets
- The feedback provided during the discussion and negotiation of the budget can be also considered input to the process

[8] Refer to the "Best Practices of IT Strategic Planning" document for more information

Process Activities

The activities during the process of setting the IT budget are illustrated in the following flow chart:

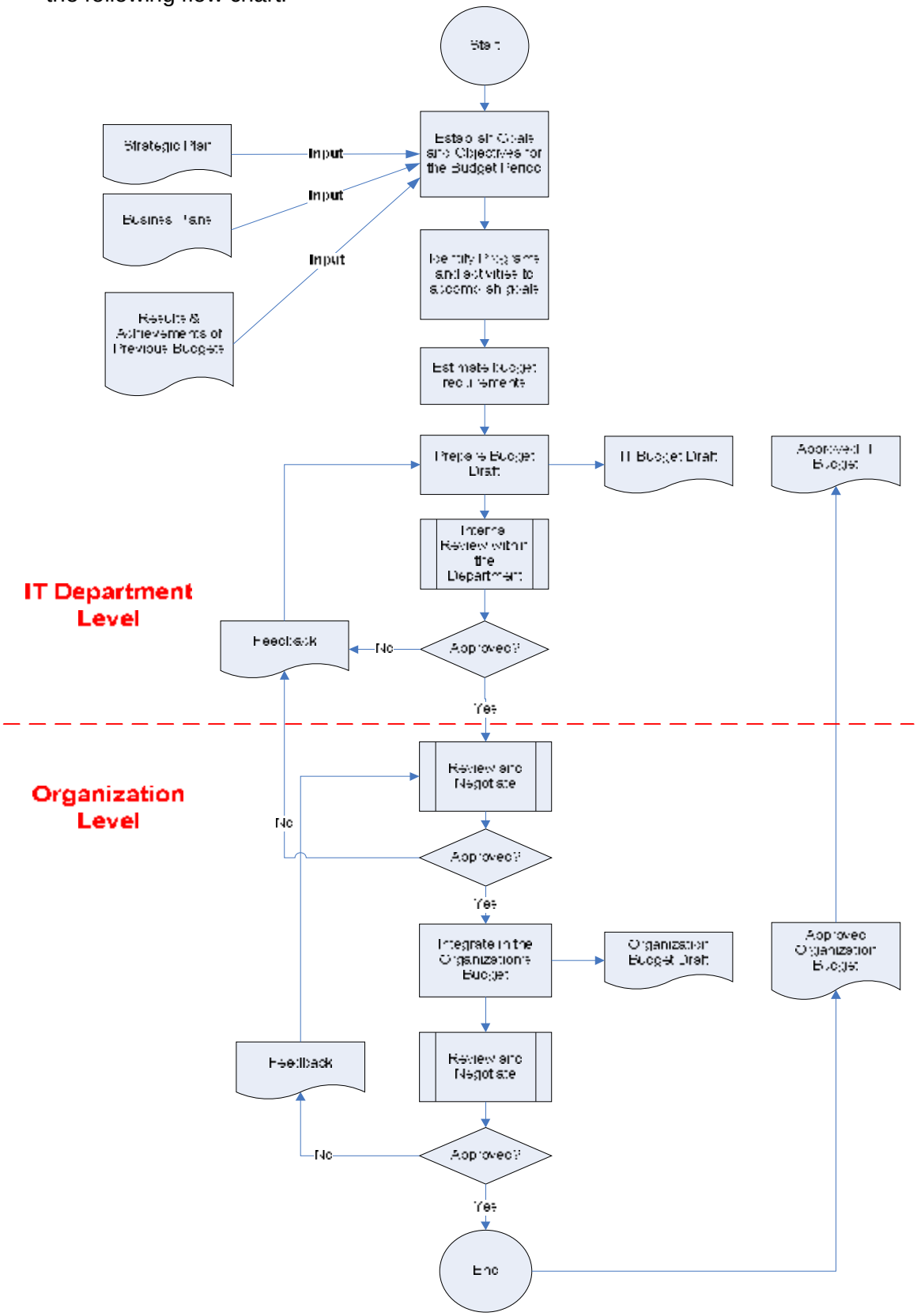

Figure 3 The process of Setting the IT Budget

The first step of the process is the yearly planning on the department level and setting goals and targets for the IT department for the coming year; this activity takes input from several sources:

- The department strategic plan which sets the strategic targets for the department. Valuable input can also be acquired from the organization's strategic plan
- The business plans for the department, its sub-departments, and the different initiatives and projects can also influence the yearly planning process
- The achievements and results of the previous budget can also provide valuable input to the process as described earlier

Once the targets are set for the coming year, the managers of the different units and sub-departments will identify programs and activities for achieving these targets. The managers of the sub-departments will estimate the cost of these programs and activities and provide budget requirements to be included in the IT Budget.

The IT budget coordinator will collect the input from the different sub-departments and put them in the right format to establish the draft of the IT Budget. Consequently, this budget draft will be reviewed for consistency and validity by the IT Budget Coordinator and the IT Manager who might discuss the details with the managers of the sub-departments to finalize.

Once the budget draft is completed and approved internally, it is reported to the finance department to review and integrate in the organization's budget.

After this step, the process transfers in the budget process of the organization which is owned by the finance department, however, the IT department might be asked to provide more clarifications and justifications for its reported budget and might need to get into negotiations cycle with the finance department to cut cost (if required). It is important for the IT Manager to support the reported budget and to stay in the loop with the financial manager until the budget is approved.

The following points summarize the sequence of events during the process of setting the budget:

1. Strategic plan and business plans in place: before budgeting begins
2. Draft budgets: referred to the organization's finance department or budget committee 1st quarter of the fiscal year
3. Organization's Finance department review and finalization: 1st quarter of the fiscal year
4. Ministry of Finance approval: two months prior to the start of the new fiscal year
5. Budget approval: one month prior to the start of the fiscal year

Process Outcomes

Naturally, the outcome of this process is final and approved IT budget for the next fiscal period. However, the IT budget goes through several cycles of reviews and negotiations until a final approved budget is reached.

7.2. Monitoring the Budget

The process of monitoring the budget is concerned with ensuring that the budget of the current fiscal year is spent properly, and foreseeing reporting on, and carefully studying any deviations from the budget.

Monitoring the budget should happen continuously and should aim to identify issues and correct them, monitoring do not represent accounting or auditing, it also provides corrective actions and guidance for better performance.

Process Scope and Objectives

The scope of the process is to monitor the budget of the current fiscal year in order to achieve the following objectives:

- Ensuring that the IT budget is spent properly with minimal deviations and with optimum value
- Maintaining traceable information about the IT expenditure against the budget
- Being prepared for the scenario of requesting variance to the budget with solid justification

Roles and Responsibilities

Process Owner: IT Manager / Director

The manager or director of the IT department is the owner of the internal budget monitoring process, he is accountable of the spending of the IT budget and he is supposed to ensure that the budget is spent properly in his department, the responsibilities of the IT Manager/Director include:

- Own the monitoring process and ensure that it is done properly
- Work with the sub-departments' managers to proactively ensure that the budget is spent properly and according to the set goals and objectives for the fiscal year
- Request periodic reports that track the department's spending against its budget and oversee the process implementation
- Request variance orders when required and support these variance orders as required

IT Budget Coordinator

The IT Manager designates the IT Budget Coordinator to follow-up on the budget spending and prepare the required reports. The IT budget coordinator's responsibilities include:

- Follow-up on the budget spending and ensure that no spending occurs without being properly approved as part of the budget
- Prepare variance orders and follow up with the finance department to ensure approvals
- Prepare periodic reports of the IT Budget spending to the IT Manager
- Represent the department in any external reviews or audits

Heads of the IT Sub-departments

- Support the IT Manager and IT Budget Coordinator in monitoring the budget
- Make spending decisions based on the planned budget, and report any required variance properly

The Finance Department of the Organization

The finance department of the organization is the ultimate owner of monitoring the budget in the organization:

- Coordinate with the IT Budget Coordinator to ensure consistency of information and correct spending of the budget
- Ensure that spending is taking place according to the approved budget, and alert the IT department if overspending is foreseen
- Provide the IT Manager with periodic reports about the spending of the IT budget
- Conduct periodic and instant audits. And represent the organization in periodic and instant audits held by higher authorities

Process Input

- Naturally, the main input to the monitoring process is the budget itself which will be the baseline for any monitoring activities taking place during the year
- Spending events and activities are also considered input to the monitoring process since the process is concerned with making sure that spending is done properly
- New instructions and legislations which will affect the budget or the budget spending and monitoring activities
- Approved variance orders should be taken into consideration in the monitoring process since the represent additions to the budget

Process Activities

Unlike the process of setting the budget, the monitoring process is not represented as a sequence of consecutive activities that are bound by time. Monitoring is a continuous process that takes place as part of everyday work for the different actors and that is best represented in a number of actions that are triggered by events. These actions differ from one organization to the other and form one country to the other; they might involve external parties such as independent auditors, international organizations, or governmental authorities.

Approving Spending

Getting approval on the requested budget is not a green light for spending without any control. Several actors and authorities are required to monitor and approve the spending and make sure that this spending is happening in properly and is mapped to available budget resources and items.

Approving the spending from the budget is considered proactive monitoring, which means that the management will be able to control the

spending and ensure that it is well mapped to the budget properly, and will be able of taking corrective actions before problems or errors occur.

The procedure of approving the budget spending is different from one environment to the other; such procedure will be detailed and well-established in government organizations. However, the following procedure represents a typical procedure that can be followed.

It is imperative to keep a track record of the budget spending within the IT department in order to be able to track the spending and prepare reports in the future.

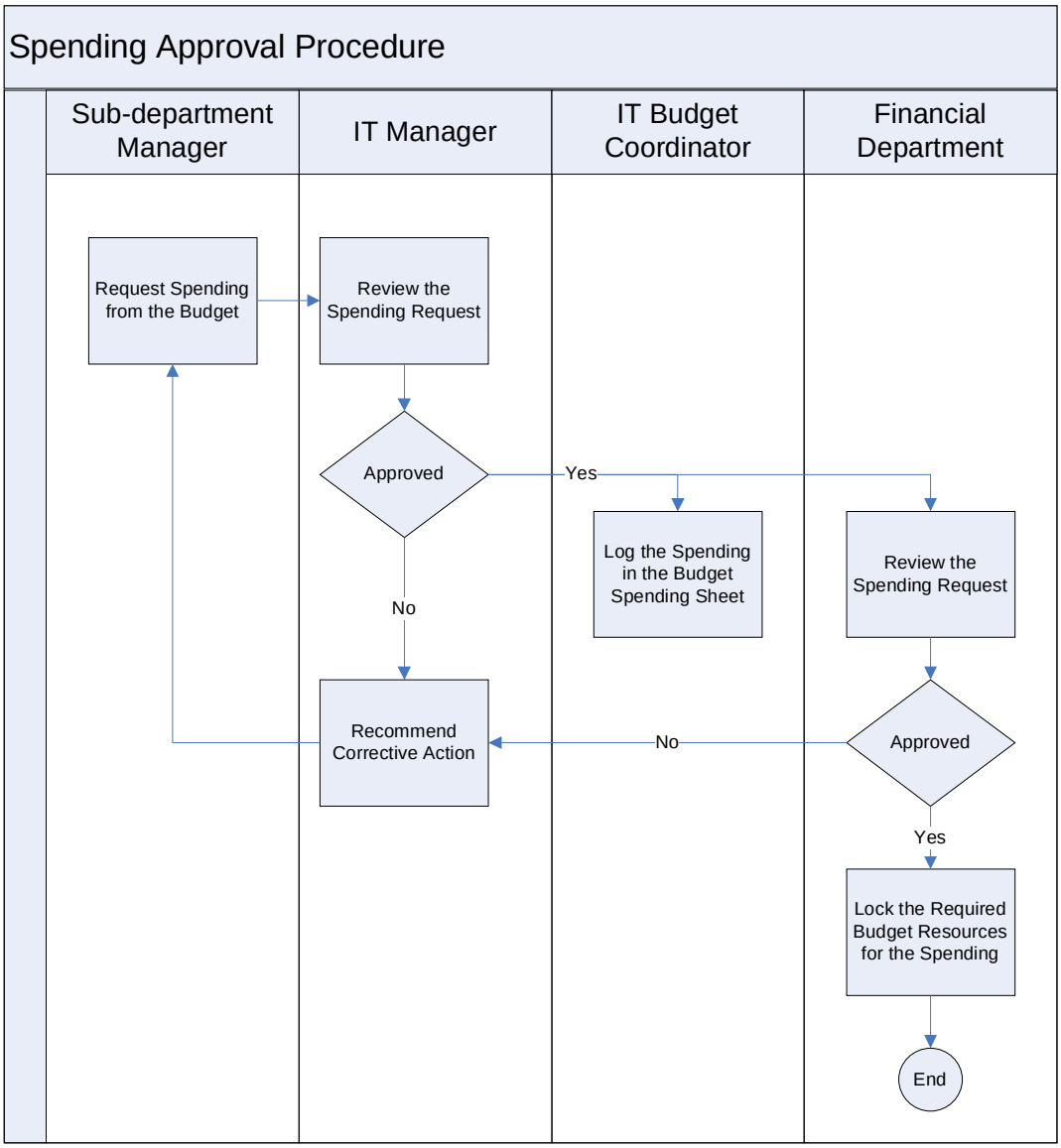

Figure 4 Sample flowchart for spending approval procedure

Remark: the Saudi Government has a well defined process for spending approval and procurement. The above procedure represents part of that process for procurement of amounts less than 100,000 Saudi Riyals. The complete process is described in the document “Best Practices of IT Procurement”

Periodic Reporting

As mentioned above, it is important to keep a track record of the budget spending within the IT department in order to be able to track the spending and prepare reports in the future.

The purpose of reporting against the budget is to track and show the spending from the budget to-date and to provide managers a tool to plan their activities for the coming period based on budget information.

The IT Manager can request a report on the budget at any time from the IT budget coordinator, the report should view all the spending that took place in a certain period of time or from the beginning of the financial year to-date. The format of the report should be able to bring the correct information in a clear and summarized manner. It is recommended to develop the habit of continuous periodic reporting (e.g. monthly report) and to make sure that the outcomes of this report are communicated people such as the IT manager and IT sub-departments' managers.

Issue and Approve Variance Statement

Often, departments might find themselves obliged to over-spend, this normally happens due to many reasons including:

- Emergency situations and unexpected expenditure
- Inaccuracy of estimation during budget estimation and planning
- Unplanned and sudden growth of business volume
- Unexpected surge on the cost of purchasing a certain asset due to the natural market demand and supply reasons

The solution to these cases is requesting variance orders on top of originally approved budget in order to be able to maintain the continuous operations and to achieve the planned goals and objectives.

Variance orders should be reviewed, approved, and logged by the IT department management as well as the finance department and should be highlighted in budget reporting as additional parts to the budget. Variance orders should also be supported with proper justification of the extra spending in order to obtain approval of the reviewing parties.

Variance orders can also be made on itemized basis, i.e. requesting a variance order on a depleted item by itself even if the other items are not depleted. The procedures and standards for making variance orders differ from one environment to the other and mainly depend on the legislative and regulatory standards that the organization is following.

Budget Transfer and Approval:

Sometimes it may be necessary to transfer the Budgeted allocation between budget elements to tide over unforeseen situations. These cases should be studied carefully and should be permitted with proper authority from IT Manager and Finance Department. IT Coordinator should provide sufficient information to justify such transfers, for which funds are already available within the IT Budget.

Scheduled and Surprise Audits

Financial Auditing is a professional conduct, it examines all the financial records of an organization and performs analysis on them to identify any issues, frauds, misconducts…etc.

Financial Audit uses the budget as an input to compare the financial activities of the organization against it.

Audits can be performed inside the organization by the finance department or special committees, this is called **internal audit**. Audits can also be performed from external bodies such as higher government financial authorities or independent auditors, and this is called **external audit**.

7.3. Governance and KPIs

Governance is an essential part of any process implementation; governance aims to ensure that the process is achieving its objectives and to that any required improvements to the process are applied.

Generally, governance over the budget is the responsibility of the financial department of the organization who is responsible of ensuring that all business units have sufficient financing and that their budget is spent properly.

In the case of IT Budget, it is important to establish the governance of the IT department over all IT-related budgeting in the organization; this is the only way to establish full accountability on the IT assets and resources.

In more practical terms, **no department should be allowed to allocate IT-related cost in their budgets. Departments must request any IT spending from the IT department.**

Without achieving this, IT departments will not be able to control IT assets in the organization. Consequently, IT departments will not be able to achieve their strategic objectives since they do not have any practical control on the IT resources in the organization.

Key Performance Indicators KPI are necessary for process governance; they create norms and performance targets that need to be achieved, they also set distinct information for reporting. KPI are normally set in relation to the process objectives to measure their achievement.

Some KPI are proposed for the budgeting process in the table below:

Table 5 Proposed KPIs for the Budgeting Process

Process	Objective	KPI
Setting the Budget	Forecasting and estimating the cost of IT services provisioning in the organization for the next fiscal period	- Accuracy of estimated budget (e.g. number of variance orders requested) - Completeness of estimated budget (i.e. does it cover all IT resources and requirements of the organization)

Process	Objective	KPI
Setting the Budget	Preparing the budget of the next fiscal period	- Target date for preparing the draft budget
Setting the Budget	Reporting the prepared budget to the organization's management to include in the organization's budget	- Target date for reporting the budget
Setting the Budget	Ensuring approval for the reported budget	- Ratio of requested budget and approved budget - Target date for approving the budget -
Monitoring the Budget	Ensuring that the IT budget is spent properly with minimal deviations and with optimum value	- Ratio of approved budget to actual spent budget - Return on Investment (ROI)[9] (when applicable)
Monitoring the Budget	Maintaining traceable information about the IT expenditure against the budget	- Number and frequency of reports prepared for the budget - Availability of information about all spending activities in relation to the budget
Monitoring the Budget	Being prepared for the scenario of requesting variance to the budget with solid justification	- Ratio of approved variance orders to the total number of variance orders

[9] For more information about ROI please refer to section 9.2 below

8. Practical Approach – Budget in the Government of Saudi Arabia

As described earlier, the budget structure and process of approval differ from one organization to the other. In the case of budgeting in the public sector, each country uses its special budget structure that is driven by its own needs and special economic characteristics.

This section provides a description of how the budget is formatted in the Government of Saudi Arabia. Each governmental organization is requested to follow this format and its guidelines for reporting its yearly budget. Understanding and following this budget model to ensure smooth budgeting process and compliance to government standards[10].

8.1. Fiscal Year in the Kingdom of Saudi Arabia

The fiscal year in the Kingdom of Saudi Arabia starts on 31 of December of each Gregorian year and lasts for 12 Gregorian months, the budget for the new fiscal year must be prepared and approved before this date. According to item (76) of the Government System, if the fiscal year starts before the budget is approved then the previous budget is applied to the new year until the new budget is approved.

8.2. Organization of the Budget

The budget of the Government of Saudi Arabia is categorized into four main categories (أبواب):

- **The First Category – الباب الأول:** includes the salaries and other human resources related spending elements (بنود). The elements of the first category include all the elements of human resources related spending including salaries of military and civil workers who are employees in the government of Saudi Arabia for the coming 12 months

- **The Second Category – الباب الثاني:** includes the general recurring spending elements such as travel allowance, utilities, transportation, accommodation, furniture, and research and development

- **The Third Category – الباب الثالث:** includes the operations and maintenance spending elements. These elements must be spent within the defined limits; spending should be reduced according to the defined limits and must not be exceeded. The third category must not include any capital spending. Items of the third category are of two types:

[10] This section uses the following book as a reference: "حسابات الحكومة في المملكة العربية السعودية، دراسة نظرية و تطبيقية \ عبد العزيز محمود الإمام، محمد عبدالله الشريف\ الطبعة الخامسة 1423هـ - 2002 م"

  - Yearly contracts and agreements with private sector providers and vendors for 1 or more years (budgeted for each year separately)
  - Direct operation by the department itself (contracting with resources directly)

- **The Fourth Category – الباب الرابع:** includes the capital spending elements. This includes all the projects that are going to start during the year as well as spending on ongoing projects that span over a multiple years

It is clear that this categorization can be mapped to the budget structure presented in section 6 above, where the first three categories map to the operation spending and its elements while the fourth category maps to the capital spending and its elements.

8.3. Variance Orders (معالجة تجاوز الاعتمادات)

The Ministry of Finance requires providing sufficient information when requesting a variance order, these information include:

- Description of the element (بند) that was exceeded, the year of approval of the budget for this element, any transfers that occurred on this element, and all spending details on this element
- Clarification of the nature of the variance and whether it is a variance that was already bound in the financial books according to the regulations or not
- Clarification of the reasons that resulted in this variance

8.4. Yearly Instructions (التعليمات السنوية التفصيلية)

The categories and elements of the budget are meant to be generic to fit for the needs and requirements of the different government departments that have different business nature and requirements. The Ministry of Finance issues yearly instructions that instructs on what items can be filled under each element of the budget. If the department feels that there is an item that do not fit under any element of the budget then it must contact and coordinate with the Ministry of Finance to clarify the situation and obtain the Ministry's support in preparing the budget.

8.5. Areas of Improvement

It is noted that there are no clear IT-related categories or elements in the budget structure of the Government of Saudi Arabia. This fact creates difficulties for the government organizations in allocating the IT budget properly and tracking the IT spending. For example, hardware items such as personal computers and laptops are normally placed under *Element 221* of the *Second Category* which concern furniture and office equipments.

These issues should be addressed on the highest levels to update the budget structure in a way that serves the purpose of properly setting and monitoring IT Budget.

9. Famous Methods of Cost and Budget Estimation

The most frequent flaw that happens during the process of setting the budget is failure to estimate accurately, which results in deviation from the budget when implementing it and leads eventually to requesting variance orders. In the light of ever growing stress to cut cost and reduce budgets. The frequent occurrence of misestimating leaves the IT department without defense during budget negotiations. Hence, accurate budget estimation today will result in less headache for the IT department next year, and will also result in smoother implementation of the budget.

This section describes two famous methods of budget and cost estimation that are deployed and used widely by IT organizations.

9.1. Total Cost of Ownership (TCO)

Total Cost of Ownership – TCO is defined as the total costs to acquire, maintain, upgrade and dispose of a certain asset.

TCO is based on the fact that the cost of owning a certain IT asset or service is not limited to the cost of purchasing this asset; it also include other costs including applying customizations on this asset to fit for specific environment, integrating the asset with other components, installing and configuring the asset, operating and supporting the asset, and even the cost of disposing the asset.

TCO is a very important financial metric that helps ensure business and financial decisions are aligned with strategic technology investments. Using TCO IT departments can demonstrate and explain the real cost of IT for the other business units which will eventually help in better negotiation of the budget.

TCO was originally developed in the late 1980s by research company Gartner to determine the cost of owning and deploying personal computers. The results of deploying this method back then resulted in big turmoil among IT and finance managers when it was found that there is a large difference between IT cost and IT purchase price; the five year cost of ownership for computing systems can be five to eight times the hardware and software acquisition costs[11].

Today, TCO analysis is used to support acquisition and planning decisions for a wide range of assets that bring significant maintenance or operating costs across a usable life of several years or more. Total cost of ownership is used to support decisions involving IT as well as other assets of the organization (vehicles, manufacturing equipment…etc).

Good TCO analysis brings out the "hidden" or non-obvious ownership costs that might otherwise be overlooked in planning budgets. The good TCO for a certain asset will influence the budget process for all the years over which the asset lifecycle spans.

[11] http://www.solutionmatrix.com/total-cost-of-ownership.html

Successful TCO estimation will typically consist of the following steps:

- The TCO begins with the design of a comprehensive cost model that covers the asset lifecycle in the organization in terms of acquisition, installation and integration, support and operation, and future expansion and changes. This model can then be applied to estimate the costs during the planning cycle of any initiative or project. The cost model can differ from an organization to another, it can also be customized to the nature of the different initiatives and projects (e.g. TCO for building a local area network can be different from the TCO for a portal). The table below describes a sample cost model that can be applied

Table 6 Sample TCO Model

		Asset Life Cycle		
		Cost of Acquisition	**Cost of Operation & Support**	**Cost of Growth & Change**
Resources	**Hardware**			
	Software			
	Network & Connectivity			
	Facilities			
	Human Resources			

- The model can also be more detailed and fine tuned depending on the nature of the asset or the organizational requirements (e.g. other values need to be taken into consideration if the organization is adopting outsourcing model of resources or assets)
- Once the model is completed and verified/approved, the estimations of this model can be translated into items in the budget. For instance, if the budget is organized in terms of Capital and Operational spending[12] then the TCO items that fall under "Acquisition" will most likely fall under capital spending while the TCO items that fall under "Operation and Support" will mostly fall under operational spending

"Appendix II – TCO Example" below provides a practical example of the use of TCO in evaluating the cost of IT assets.

One of the issues with the TCO is that it can overlook some of the hidden costs of acquiring an asset if the cost model is designed from pure financial perspective only, however, the TCO cost model can mature over time inside an organization if proper maintenance is practiced on the model. The table below summarizes some of the obvious that are typically considered and some of the hidden costs that are often overlooked[13]:

[12] Refer to 6.1 above
[13] http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=76240

Table 7 Obvious and Hidden costs to be considered in TCO

Obvious Costs	Hidden Costs
- Hardware - Packaged-software license fees - Personnel - Hardware and software deployment - Support and service - Custom application development - Upgrades - Energy and space	- System downtime in terms of lost opportunities and productivity - Being locked into a technology - Changing technologies and platforms - Having nonstandard configurations - Training new users

9.2. Return on Investment (ROI)

Return On Investment – ROI is a financial measure of the perceived value of return from a certain investment, the ROI is normally presented as a percentage. The simple mathematical equation for calculating the ROI is illustrated below:

$$ROI = \frac{V_f - V_i}{V_i}$$

Where Vf is the final value of the investment or the asset and Vi is the initial value of the investment or the asset.

In practical interpretation, the ROI means the ratio of profit expected from the invested money, e.g. if an investment costs 1 Riyal and returns 1.5 Riyals then the ROI is equal to 50%

In other cases, the ROI is not calculated mathematically and directly, it is rather estimated based on the final value of the asset in terms of increasing the efficiency or effectiveness or in terms of the cost saving obtained from the investment.

ROI is not a tool for estimating the budget, it is rather a tool that can be used to **justify the spending** and **defend the budget** by showing its value of return to the organization. This is particularly used in organizations where IT is perceived as part of the real value chain of the business or as a profit center rather than being considered a cost center or a supporting unit.

ROI is also widely used for building the **business case**[14] of new initiatives and to **prioritize** these initiatives during strategic and annual planning.

[14] A Business Case is a structured proposal for business improvement that functions as a decision package for organizational decision-makers. A business case includes an analysis of business

In all cases, ROI is a concept that should be understood by IT Managers and other senior staff who are involved in the department's planning and budgeting activities in order to be able to make sound and persuading decisions.

"Appendix III – Examples of ROI e-Government and e-Commerce Projects" provides case study of some examples of the use of ROI in e-Commerce and e-Government projects success.

requirements and associated needs or problems, proposed alternative solutions, assumptions, constraints, and a risk-adjusted cost-benefit analysis.

10. Success Factors

Now that we defined the concept of budgeting and the process of budgeting comprehensively, we would like to provide some guidelines and advices for successful budgeting.

Money is the most important aspect in any business, departments that are equipped with the sufficient budget will have the flexibility and the ability to grow and innovate, those who suffer from limited budgets will face many challenges in growing. This is actually what makes the budget a vital *yearly test* for the IT department, which makes the budget more than just a list of estimates and requirements, it becomes a tool for proving the goals of the IT department and justifying the existence of the IT department in the organization.

However, in order to come out as a *winner* in this *test*, IT managers will need to support their budget requirements and to show that these requirements are reasonable and essential for the success of the business.

There is no ready recipe for doing so in the very limited period of budget negotiations; budget negotiations can be very subjective and can combine politics and bureaucratic procedures. Still, there are some long term commitments that need to be taken by the IT department and which will always help in proving the sufficiency of the budget and help in better budgeting, some of those commitments are listed below:

- **Having a long-term strategy:** an IT strategy reflects thoughtful decisions that are made based experience and long term commitment rather than reactive and random decisions[15]

- **Alignment to the business requirements:** IT is mostly considered a supporting function that supports the business in achieving its objectives, as long as the business is able to see the value of IT in being aligned and supporting to the business objectives then it will have more interest in investing in it. This does not happen without making the effort from the IT department to properly align and interface with the business not just by fulfilling its requirements but even to become a success factor and enabler for the business to gain more profits and achievements. In the public sector case, alignment is also required on higher level that is the alignment to the national programs and initiatives such as alignment to e-Government program goals and objectives

[15] Refer to the “Best Practices of IT Strategic Planning” document for more information.

- **Defining success measures and performance indicators:** one of the measures of maturity in an organization is its ability to set clear and measurable objectives on all levels and being able to measure and report on these objectives. When success measures and performance indicators are set and reporting on them is a constant habit then budgeting for the future becomes easier and more appreciated since it is built on tangible facts that reflect the true state of the organization. This will also make the organization able to correct itself at any point of time

- **Succeeding in previous budgets:** there is nothing more helpful in negotiating the budget than showing that the previously obtained budgets were utilized successfully. This again will build the assurance of the business in the ability of the IT department to properly estimate and plan its spending

- **Continuous and stable growth:** there will always be periods where the IT department decides to undertake major changes and development projects, which will result in major difference between the budget of that period and previous periods. This scenario will attract attention to the budget and put the IT manager in more challenging position to defend the budget. The opposite to such scenario is reflecting continuous and stable growth in each budget period, which will reflect stability and maturity in the IT department and show that expansions are made based on determined and well-studied plans. Of course this will not succeed without committing to some of the other factors that are described above such as strategic planning and setting success measures

11. Appendix I – Practical Example of Budget Allocation

In this appendix we try to provide a simple and practical example of how to identify cost elements of an IT department and how to allocate these elements under capital or operational expenditure. For this example we will use the same cost model described in Table 6 which is based on the method of Total Cost of Ownership (TCO). For the sake of simplicity and to avoid going in details with numbers, an imaginary unit **X** is used generically to describe a cost unit for any element (e.g. the cost of a server is 2X and the cost of support is 3X and so on..).

11.1. Scenario Description

An IT department is setting the budget for its new datacenter which shall be launched next year. The datacenter will be providing 3 different services as described in the table blow:

Table 8 Services in the datacenter example

ID	Description
Service 1	Email service
Service 2	Organization's Portal
Service 3	Internal HR System

11.2. Identifying and Estimating Cost Elements (TCO)

- Planning and design phases were completed for the new services earlier and the following TCO requirements were identified for the first year:

Table 9 TCO model for hardware and software

		Asset Life Cycle		
		Acquisition	Operation & Support	Growth & Change
Svc. 1	Hardware	4 X	2 X	X
	Software	2 X	X	X
Svc. 2	Hardware	8 X	4 X	X
	Software	4 X	2 X	X
Svc. 3	Hardware	3 X	2 X	X
	Software	4 X	2 X	X

- The cost of acquisition of hardware and software is considered capital investment. In addition, the cost of growth and change is considered capital investment as well. The operation and support cost is considered operational cost.

- Other cost elements such as network and connectivity and security are calculated for the datacenter in general and not per service. The cost of connectivity to the internet is placed under the operational cost of "Network and Connectivity":

Table 10 TCO model for network & connectivity and security

	Asset Life Cycle		
	Acquisition	**Operation & Support**	**Growth & Change**
Network & Connectivity	**8 X**	**8 X**	**2 X**
Security	**2 X**	**2 X**	**X**

- The cost of human resources include the cost of the datacenter employees (referred to as internal HR) as well as the cost of professional services which were procured from several providers (referred to as external HR); both of these elements are considered operations costs. However, a fixed-cost contract was procured for software development required for the organization's portal, the cost of this contract is considered a capital investment and falls under "Human Resources – External" cost element[16]. As for the training cost of the datacenter employees, it is considered an operational cost under "Growth & Change" column

- The facilities cost includes the cost of the datacenter building rental (operations cost) and the cost of installing air conditioning and fire safety systems (capital cost)

- The cost of utilities (water, electricity) is considered operational cost. The department is outsourcing the office support operations (cleaning and maintenance) as one contract to an external company (operations cost)

[16] Consultancy and professional services contracts are confusing while setting the budget; it is favored to consider fixed-cost contracts as capital cost while time and material contracts can be considered operational cost

Table 11 TCO model of other cost elements

		Asset Life Cycle		
		Acquisition	Operation & Support	Growth & Change
Resources	Human Resources – Internal		8 X	X
	Human Resources – External	2 X	8 X	
	Facilities	2 X	4 X	
	Utilities		X	
	Office Support		2 X	

- In summary, the table below summarizes the estimated budget for building and running the datacenter in the first year according to the adopted cost model:

Table 12 Complete TCO Model

		Asset Life Cycle		
		Acquisition	Operation & Support	Growth & Change
Resources	Hardware	15 X	8 X	3 X
	Software	10 X	5 X	3 X
	Network and Connectivity	8 X	8 X	2 X
	Security	2 X	2 X	X
	Human Resources – Internal	-	8 X	X
	Human Resources – External	2 X	8 X	-
	Facilities	2 X	4 X	-
	Utilities	-	X	-
	Office Support	-	2 X	-

11.3. Mapping the Cost Model to the Budget Structure

Once this level of details is achieved, it is easy to map the above table into the budget structure and templates described in 6 above where the budget is divided into capital costs and operational costs. The table below summarizes the mapping between the TCO cost model and the proposed budget structure:

Table 13 Mapping between the TCO model and the Budget structure

		Asset Life Cycle		
		Acquisition	**Operation & Support**	**Growth & Change**
Resources	**Hardware**	CAPEX – Hardware	OPEX – Hardware	CAPEX – Hardware
	Software	CAPEX – Software	OPEX – Software	CAPEX – Software
	Network and Connectivity	CAPEX – Network & Connectivity	OPEX– Network & Connectivity	CAPEX – Network & Connectivity
	Security	CAPEX – Security	OPEX – Security	CAPEX – Security
	Human Resources – Internal	-	OPEX – Manpower	OPEX – Training
	Human Resources – External	CAPEX – External Services	OPEX – Manpower	-
	Facilities	CAPEX – Accommodation	OPEX – Accommodation	
	Utilities		OPEX – Utilities	
	Office Support		OPEX – Accommodation	

12. Appendix II – TCO Example

An organization is evaluating two options for the new Database Management System it is planning to deploy. Both of the two options provide all the functional, performance, and security requirements of the organization; hence, the IT department in the organization decided to conduct a TCO analysis for both options in order to make the decision for purchasing the most cost-effective option. The new system is planned to serve the organization requirements for the coming 5 years.

12.1. Option 1 Characteristics

Software

- The cost of the software license is 50,000 Saudi Riyals
- The cost of yearly maintenance and support license from Option 1 provider is 3,000 Saudi Riyals. Which will sum up to 15,000 Saudi Riyals over the planned 5 years

Hardware

- To meet the organization's performance requirements, it was found that the cost of the hardware for Option 1 is 80,000 Saudi Riyals
- 20% hardware expansion and maintenance cost is estimated for the coming 5 years

HR & Training

- In order to operate the new system, the IT department is planning to assign allocate two of its system administrators for operating and administering the new tool, the average salary of the two resources in one year is estimated to be 200,000 Saudi Riyals
- Local training is available by a provider's agent in the Kingdom for the cost of 10,000 Saudi Riyals per person. For safety purposes, the IT department will estimate the cost of training three resources to cater for the possibility or replacing or relocating one of the resources during the five years

Customization and Integration

- In order to integrate and customize the new system in the organization's IT environment, the IT department will procure professional services of a system integration company. The cost for this procurement is estimated to be 150,000 Saudi Riyals

The following table summarizes the TCO cost model for Option 1. The total cost of ownership for Option 1 sums up to 541,000 Saudi Riyals:

Table 14 TCO cost model for Option 1

		Option 1		
		Acquisition (SAR)	**Operation & Support (SAR)**	**Growth & Change (SAR)**
Resources	**Software**	50,000	15,000	-
	Hardware	80,000	-	16,000
	Human Resources	30,000	200,000	-
	Customization and Integration	150,000	-	-

12.2. Option 2 Characteristics

Software

- The cost of the software license is 30,000 Saudi Riyals
- The cost of yearly maintenance and support license from Option 2 provider is 5,000 Saudi Riyals. Which will sum up to 25,000 Saudi Riyals over the planned 5 years

Hardware

- To meet the organization's performance requirements, it was found that Option 2 will require higher end hardware that Option 1, the cost of hardware for Option 2 is estimated to 120,000 Saudi Riyals
- 20% hardware expansion and maintenance cost is estimated for the coming 5 years

HR & Training

- In order to operate the new system, the IT department is planning to assign allocate two of its system administrators for operating and administering the new tool, the average salary of the two resources in one year is estimated to be 200,000 Saudi Riyals
- Local training is not available in the Kingdom for Option 2, the cost of training abroad is estimated to 25,000 Saudi Riyals per person. For safety purposes, the IT department will estimate the cost of training three resources to cater for the possibility or replacing or relocating one of the resources during the five years.

Customization and Integration

- The IT department decided that it can handle the customization and integration tasks in-house. However, since this project will require allocating two resources for 3 months, the cost of customization and integration is estimated to be 60,000 Saudi Riyals

Security

- It was decided that the current Information Security setup is not adequate for option 2; hence, additional Security system need to be procured and deployed. The cost for the new security system is estimated to be 25,000 Saudi Riyals

The following table summarizes the TCO cost model for Option 2. The total cost of ownership for Option 2 sums up to 559,000 Saudi Riyals:

Table 15 TCO cost model for Option 2

		Option 2		
		Acquisition (SAR)	**Operation & Support (SAR)**	**Growth & Change (SAR)**
Resources	**Software**	30,000	25,000	-
	Hardware	120,000	-	24,000
	Human Resources	75,000	200,000	-
	Customization and Integration	60,000[17]	-	-
	Security	25,000		

12.3. Conclusion

It is obvious that the TCO analysis above shows that the total cost of owning Option 1 will be less than the total cost of Option 2. So, the organization is now able to make decision on what option is more cost effective.

However, it is important to note that since the difference in the cost of both options is not major then the organization might decide to go with either one of them based on other factors such as:

- The department might decide to go with Option 2 because it prefers to have the customization and integration project done in-house rather than outsourcing it
- The department might decide to go with Option 1 because it is very keen on investing in new Security system

[17] Please note that although the customization and integration of Option 2 will take place in house, it is budgeted as a separate item in order to give the department the flexibility to select a different direction later

13. Appendix III – Examples of ROI e-Government and e-Commerce Projects[18]

City of Ft. Lauderdale Online Issuance of Purchase Orders and Electronic Signature of Purchase Orders

Background

As with many government agencies, the typical method of issuing purchase orders is by printing and mailing. In today's world, that process has become increasingly expensive, and time consuming. The City of Ft. Lauderdale Procurement and Materials Management Department issues over 3,000 purchase orders per year. Although the cost per purchase order is not extremely high, the process is very labor intensive—it is an extremely repetitive and time consuming task to print and stuff purchase orders into envelopes and mail them on a daily basis. However, this essential task must be accomplished with accuracy to assure the timely delivery of needed goods and services. Therefore, the city believed there was a better way to deliver purchase orders more quickly and efficiently, adding both value and cost savings to the process.

Working in conjunction with its purchasing software vendor (BuySpeed), the city developed two faster and more efficient methods of transmitting purchase orders to vendors. The first and most often used method is faxing the purchase order to the vendor directly from within the purchasing software at the clerk's desktop. Instead of hitting a print button, the clerk hits a fax button and the purchase order is faxed directly to the vendor's fax number on file in the electronic vendor database. The second method is e-mailing the purchase order to the vendor. Again, instead of hitting the print button, if the vendor has an e-mail of record, the purchasing software converts the purchase order to an Adobe Acrobat file and e-mails it as an attachment to the vendor.

In both cases, as the approving authority, once the manager of Procurement and Materials Management has approved the purchase order, an electronic signature, as a verification of issuance, appears on the document that is sent to the vendor. All of this is done directly from the clerk's desktop PC, so there is never a need to walk to a standalone FAX machine or walk to the mailroom to make sure a purchase order gets into the mail that day.

In order to implement the faxing capability, the city needed faxing software that would integrate with its purchasing software. This integration entailed some research and custom programming within the purchasing software so faxing could be done directly from the purchasing software. The city looked at many faxing software packages and decided on the one they felt worked best for current needs and potential future applications.

The e-mailing of purchase orders was a feature that was already included in the purchasing software, so implementing that capability meant only obtaining licenses for Adobe Acrobat writer. Receiving vendors only needed Adobe Reader to access purchase orders, which is free, so this more efficient program resulted in no additional costs.

[18] ROI Paper: National Electronic Commerce Coordinating Council - 2004 (http://www.ec3.org/Downloads/2002/roi_paper.pdf)

Results/Benefits

A vendor now receives a purchase order much more quickly, generally the day it is electronically approved and signed by the manager or assistant manager, either via fax or e-mail. This process has greatly improved delivery times and decreased the number of purchase orders that do not appear to get to the vendor via mail. With the faxing of the purchase order, the city receives a confirmation of successful fax transmission.

With the e-mailing of purchase order, the city receives an electronic notice if the e-mail is undeliverable. Additionally, when sending via e-mail, the city is generally able to send the purchase order directly to the sales person, as opposed to the general office, where things sometimes get misplaced. The city now saves the clerk's time, which was used to stuff and mail purchase orders, and has freed that person up for other more strategic duties.
Since the implementation, the city mails less than five percent of the purchase orders issued. The purchase orders that are mailed go to vendors for which the city does not have a good fax number or e-mail. The fax/e-mail capability has also been used in other departments' software applications, since city departments all use the same fax software. This interoperability has saved many dollars for the Building Department who has implemented a similar program for delivery of permit approvals. Hard dollar savings for the printing and mailing of purchase orders are also being realized. Additional cost savings include the time of staff printing and stuffing the envelopes for every purchase order. The program was implemented two years ago and the city has almost reached their ROI point and paid for the project.

Texas Online

Background
TexasOnline (http://www.TexasOnline.com) is the official state site for the state of Texas. The Web site offers citizens online services such as drivers license and I.D. card renewal, vehicle registration renewal, tax payment, occupational and professional licenses and vehicle registration address change. A benchmarking study was recently conducted to determine the benefits of using TexasOnline to deliver services to the citizens of Texas. The objective of the study was to compare the cost of conducting a transaction before and after online implementation and to determine the qualitative benefits that governmental entities predicted they would achieve compared to the actual benefits they experienced by placing a service online.

The study analyzed the qualitative and quantitative benefits that four pilot agencies experienced using TexasOnline to provide an online delivery channel for their services. The expected outcome from the study was that government entities would experience cost savings by placing services online. Both the government entities and the citizens using the online service would experience qualitative benefits from using TexasOnline as a service delivery channel.

Results/Benefits
The study identified benefits both to state agencies placing services online and citizens using the online site to conduct business. Benefits to Texas government agencies placing services online included:

- Outsourcing of Data Entry. In many of the applications, the citizen or business inputs information when using the online system. This reduces the number of exceptions (errors) that need to be corrected by agency staff. In addition, staff does not need to perform data entry of the transactions, since the citizen or business has already done it for them.
- Decline in Exception Handling. One agency experienced an overall decline (from 11 percent to 3 percent) in the percentage of exceptions that needed correction. The design of the online system is such that the citizen cannot complete a transaction without filling

in the required fields on the online screen. This contributes to the decrease in the number of exceptions.
- Faster Processing Time. Placing services online has enabled agencies to reduce internal processing times. Some agencies have had over a 50 percent reduction in the time it takes to process an application. Average processing time of online filings is instantaneous, in contrast to offline transactions, which take an average of seven hours to process.
- Reallocated Staff Hours. One agency has been able to reallocate over 1,000 staff hours in FY02 to other functions in the agency, and projects to reallocate almost 4,000 staff hours in FY03.
- Interest Earned on Tax Dollars. One of the applications benchmarked provides for timelier deposit of funds, meaning the tax dollars are being deposited into the treasury sooner and available for interest earnings. Most taxpayers mail their return on the due date and within one to three days of postal service time; the money arrives at the agency and must then be handled and keyed for entry. The online system gets the tax dollars into the treasury faster, with little or no intervention by agency staff.
- Cost Savings. One agency expects to see a 71 percent reduction in its cost per transaction in FY03.

Benefits to citizens using TexasOnline to conduct business included:
- *Customer Convenience.* The customer has the convenience of transacting with the government 24 hours per day, seven days per week, 365 days per year from any location. The customer also has the convenience of using a credit card and in some cases electronic check.
- *Expanded Renewal Time.* For renewal applications, the citizen can renew licenses online on the very last day to renew and still make the agency deadline. If the citizen were to send a renewal via mail, he or she would have to factor in time for the post office to get the renewal to the agency office in order to get it in before the deadline.
- *Increased Access to Service.* One agency has made not only the Web application available, but also an Interactive Voice Response telephone application (IVR). IVR is available for those without access to the Internet.
- *Faster Service.* For three of the agencies benchmarked, citizens using the online system can receive their requested service faster.
- *Secure Online Access and Payment.* Transmission of student records can be done through TexasOnline. Sensitive information, such as student records and payment transaction information, is secure and protected by TexasOnline.
- *Address Changes.* Two agencies allow address changes to be made for those persons renewing their license online.

Support from top management is seen as the key factor of success for Texas Online. Support from the agency's top management is essential for any e-government program to be a success. Without top management support, implementation of the online service, marketing of the service and studying the cost/benefits of the service would be very difficult.

14. Appendix IV – Glossary of Terms

The following terms have been used in this document with the following contextual meaning:

Table 16 Glossary of Terms

Term	Contextual Meaning
IT	Information Technology
ITIL	IT Infrastructure Library
TCO	Total Cost of Ownership
ROI	Return on Investment
ISO 20000	International Standardization Organization – Standard 20000
itSMF	IT Service Management Forum