The Kazakhstan Public Sector Information and Communication Technology (ICT) Strategic Plan Guide

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Abstract

The Kazakhstan Public Sector Information and Communication Technology (ICT) Strategic Plan Guide is prepared to assist Government agencies in developing their ICT strategic plans.

The objective of this part is to provide a guideline that represents activities and tasks involved in developing an ICT Strategic Plan. This guideline consists of a set of standard steps grouped in 2 major stages:

Stage 1: Develop ICT Strategy, and

Stage 2: Develop Implementation Plan

1. Introduction

Information and Communication Technology (ICT) is an increasingly powerful tool for improving the delivery of government services, enhancing ICT development opportunities and participating in global markets. Like other key business resources, the ICT applications require strategic thinking; just as individuals need financial strategies, human resource strategies and environmental strategies. A strategy is the pattern of missions, objectives, policies, and significant resource utilization plans stated in such a way as to define what business the agency is in (or is to be in) and the kind of agency it is or is to be, therefore strategy and business visions are closely linked. A complete statement of strategy will define: service line and the customers; customers segments for which services are to be designed; channels through which these customers will be reached; the means by which the operation is to be financed; service objectives; and the "image" which the agency will project to its customers.

An ICT strategy is intended to align the application of ICT to the organization's overall business strategy. The ICT strategy is also needed to plan for critical ICT investments in a complex and fast changing environment. It assesses strategic needs and opportunities for ICT applications, justifies investments and plans ICT related transitions and migrations. Generally, the objectives of an ICT strategy are to: establish a clear ICT direction based upon the business needs; adjust the ICT capability and delivery to respond to the business imperatives; and determine fundamental approaches and choices for applications, organization and infrastructure.

2. Why do we need an ICT Strategic Plan?

The recent advances and fast pace in ICT is changing business processes and structures, reshaping relationships with business partners and competitors, and in some cases they even cause the transformation of an agency. An ICT Strategic Plan will address the alignment between the strategic operational requirements of an agency enterprise and the planned and economically justified application of technology assets. This alignment is best achieved when ICT has been deployed as an enabler of one or more cross-functional business processes. The basic interplay between the business strategy area of expertise and the ICT strategy area of expertise is the dynamic between business "requirements push" and "technology pull". The "requirement push" is the direct specification of information and processing needs by the business. However, true competitive advantages are very often gained through "technology pull". This occurs when the business is made aware of opportunities through insight and understanding of the capabilities of technology. Without this insight there may be no customer self-service, costly information exchange, and a disadvantage in establishing eBusiness and eCommerce. In summary, the ICT Strategic Plan will help the agency to: apply ICT creatively in order to obtain competitive advantage and support business strategy; ensure that ICT investments are cost-effective and benefits are measured against planned goals/ budgets; control ICT expenditures; protect existing ICT investments; resolve conflicting demands for limited ICT resources; obtain joint ICT management/ user commitment; and avoid ad-hoc ICT projects.

2.1. The Kazakhstan Public Sector Methodology

This guide was developed based on the PwC`s ascendant suite of implementation methodology for strategic ICT planning which includes ICT environment assessment and planning, systems evaluation and selection, and also programme and project management. It integrates the business process, functional assessment and change integration with ICT and has been tailored accordingly to suit the Public Sector needs. The methodology adopts the 4-stage approach that answers the *Why, What, How* and *When* questions for each activities of an ICT Strategic Plan formulation. The stages are then broken down into phases (as shown in Figure 1) and each phase contains steps and detailed activities.
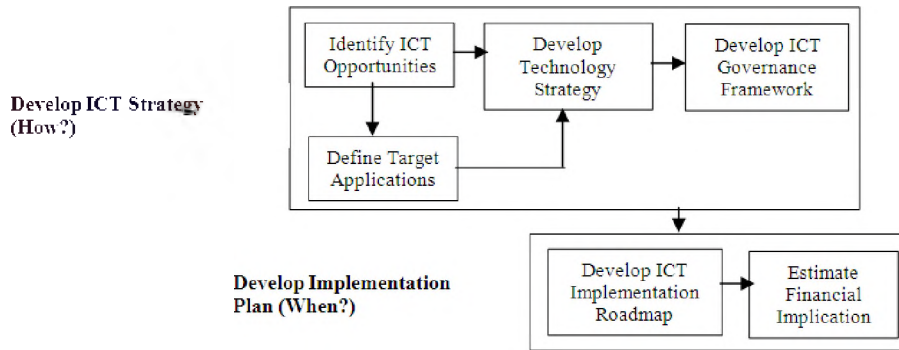

Figure 1. ICT Strategic Approach

ICT Strategic Plan outputs are produced in every phase of this methodology. Broadly, these output are categorized into deliverables and interim output. Deliverables are provided to the agency for approval, usually making the completion of a stage and are formal project documents. Interim outputs are internal project team documents that support the mark progress toward the deliverables.

The two principle deliverables of the methodology are: an ICT Strategy which consists of a framework or a set of guidelines for the development and use of ICT; and an ICT Strategy Implementation Plan to implement the strategy.

3. Develop ICT Strategy

In this stage, new applications and their functionality processing requirements that will have strategic impact on the current ICT environment are identified and a set of prioritized application for the target environment are defined. The objectives of this stage are to: identify the ICT opportunities to better support the business strategy; and design the target ICT environment, covering prioritized target applications, technology architecture and ICT governance.

This part also suggests the target applications and implementation options, the technology architecture and profile of the ICT organization.

3.1 Identify ICT Opportunities

The purpose of this phase is to generate ideas and identify opportunities enabled by new applications or current applications not presently in use within the agency. These opportunities should also cover the business process operations and operating decisions that can be improved through extension of applications support. An ICT opportunity may cover the following aspect: new information (e.g., customer preference and quality rating); new information relationships (e.g., sales by product group and receipts by supplier); physical changes (e.g., more timely, more accurate, and better format); business opportunities (e.g., organizational changes and business process transformation); and lower computing hardware costs (e.g., downsizing from a mainframe to workstations connected by a LAN).

The approaches that can be taken to identifying ICT opportunities are as follows: brainstorming; cross-fertilization (between business and system personnel); reviewing system development projects (for new ideas in further enhancing products and/or services); conducting market research and competitor analysis; benchmarking (finding out what and how other companies including competitors in the same or similar industries are doing in applying IS to gain competitive advantage); reviewing in-place technology (for new ways in

using existing resources); analyzing existing products (for ideas of products complementing or adding value to existing products); and engaging in new technology ventures.

The objective of this phase is not to define the functional processing requirements of each application. Hence, defining functional processing requirements is an implementation activity that is performed in the requirement definition phase of a system development project.

Activity 1: Leverage on the value chain analysis

Value is identified by defining high priority activities that are performed by an agency. Value chain analysis is used to model an organization's internal business environment. It identifies the value brought to the marketplace. It is based on the premise that competitive advantage is best understood by looking at the firm as a system of discrete but interdependent processes.

Analysis of the value chain should look at how well the agency actually puts its strategies into practice and identify the information content of each value activity and its linkages. The potential opportunities can be derived from the value chain in terms of: automating the physical tasks in a value activity; physically connecting or controlling activities across linkages; improving management and control of value activities; and optimizing or coordinating value activities across linkages.

Activity 2: Perform gap analysis

Identifying the gap in performance between current ICT environment and target ICT environment. Identify potential areas of operation that require improvement by collecting information which was not currently recorded and applying the current recorded information in various new ways. The use of strategic assessments and best practices can also help identify potential solutions.

Activity 3: Derive appropriate ICT opportunities

When completing the competitiveness analysis, value chain analysis, organizational restructuring, or other opportunity analyses, the target opportunities should be matched with the appropriate choices of technologies.

Activity 4: Identifying risks associated with ICT opportunities

Identify the risks associated with new and unproven technologies before considering the ICT opportunities based on emerging technology. Examine factors that could threaten any planned project actions from being carried out successfully, prevent any milestones from being achieved, or otherwise represent a risk such as time and ease or difficulty of catching up with the emerging technology.

3.2 Develop Technology Strategy

The objective of this phase is to identify a set of technology components to support the TA. A technology design/architecture will be developed to capture various components (e.g. communication, database, server and client system software, security and control, etc).

Activity 1: Perform research on the latest technology trends

Conduct a research on best practice surveys/benchmarking, best practice visits (within and outside the industry), technology trends, or industry standards. Source of information on technology trends can be obtain through seminars, journals, publications and subject matter expert. This technology strategy must be positioned to meet the current and anticipated business needs in response to technological changes.

Activity 2: Determine its implications on the agency's environment

If a technology trend could increase the growth requirements of the ICT infrastructure, determine this potential impact in the growth forecast. For example, a technology trend is the use of a corporate intranet. In developing an agency's ICT infrastructure, examine the opportunities and risks (both business and technical) of an intranet policy.

3.3 Develop ICT Governance Framework

The purpose of this phase is to define and recommend to senior management the ICT governance framework, which is the process of how ICT policy, resources and systems are established, deployed, managed, amended and enforced.

In summary, ICT Governance is: the body of rules, agreements and standards that defines the basis for interaction between different people, departments, roles and functions within the agency; the principles that determine the way decisions are made and conflicts resolved at all levels; an explicit statement of when and under what conditions ICT decisions fall within the authority of ICT governance; and the distribution of accountabilities and responsibilities.

A strong ICT governance structure is essential to the development and implementation of the e-government initiatives. An ICT governance framework should contain the following criteria:

- Promote and support collaborative approach to ICT;
- Increase cooperation between agencies, resolving hard issues;
- Inform debate at senior agency levels on achieving strategic outcomes;
- Recognize the opportunities to accommodate the extensive investment required for integrated service delivery; and
- Enable agencies to continue to manage their own ICT strategy, development, implementation and support.

4. Develop Implementation Plan

Based on the tasks and activities carried out in previous stages, this final stage defines the major projects that are required to implement and execute the strategy selected and schedule the costs and technology resources required. The objectives of this stage are to: develop a roadmap that highlights the major projects required to implement the recommended strategy; and estimate the investment required to implement the recommended ICT environment

The major projects to be implemented are defined by milestones or phases of development. They are identified after a review of their underlying technology and ICT infrastructure management. The effort to implement each project is then estimated.

An Implementation Plan can be defined as an action plan that determines how to transform an agency's strategy into reality. A more simplistic view is to sequence the ICT opportunities defined earlier and perform necessary analysis to determine the milestones, timeframe and resources required to implement them. An implementation roadmap represents the actions required to change opportunity into realized benefits.

4.1 Develop Implementation Roadmap

The objectives of this phase are to: identify primary development projects that determine the major milestones and phases; define the supporting projects which serve to implement the selected ICT strategy including target applications, organizational unit and structure, policies, procedures, equipment and system software; identify strategy to move from current to target environment; and develop the plan and implement the ICT strategy

Review the implementation efforts and identify those of primary importance, the accomplishment of which can serve as major milestones for phases of implementation. Identify these major efforts as the primary projects.

Activity 1: Identify projects, which define major milestones

Review the target application profiles and technology architecture. Develop a broad timeline for major implementation. Projects are prioritized by their relationship to the target environment. Individual projects are grouped to present a high-level overview of each project's prerequisites, dependencies, time-frame, barriers, enablers, and resources requirements.

Activity 2: Identify and resolve migration issues

Address major implementation issues that must be resolved to ensure successful transition to the target environment. Example: Redefine the disposition of current equipment configurations and applications during migration, the role of ICT management during migration and the policies and procedures for procurement of staff, equipment, software, etc.

Activity 3: Identify project barriers and enablers

Identify the barriers and enablers especially the ones that involve stakeholders and determine their relevance for each project.

Activity 4: Define project dependencies

Review the primary projects and identify possible dependencies between projects such as:

- Implementation date;
- Project date;
- Test start date;
- Prototyping start date; and
- Development starts date.

Activity 5: Rank the project

Perform sequencing of projects based on ranking of the applications and precedence relationship with other projects.

These environment implementation considerations directly impact the schedule and cost of the infrastructure. Incorporate within the implementation schedule the dependencies these considerations imply.

Determine the implementation strategy for each environment. Consider the life span of these environments if they are to be combined with or expanded into other environments. Also consider whether the environments are to continue once the system has commenced production. For those environments that will cease to exist, indicate how and when this will be affected.

Activity 1: Determine the principal for implementation

Define the adopted strategy to implement the ICT strategic plan by: determining all of the tasks and work elements that are necessary to realize the new processes and ways of working, and their interactions and interdependencies; determining the delivery milestones associated with each task and work element; and identifying the resources required for implementation and the associated costs, skills required people who will be used, when they will be used.

Activity 2: Estimate implementation effort and duration

Consider the implementation approach and nature of the project while estimating the effort and duration required for implementation. Estimate the start date and end date, and calculate the duration (in days) required to complete each project based on an understanding of the project priorities, change action dependencies, resource requirements/availability, and skill requirements/availability.

Activity 3: Determine the implementation sequence and recommended ICT environment

Prepare time-phased schedules for the overall project implementation roadmap.

4.2 Estimate Financial Implications

The purpose of this phase is to develop estimates for implementation of the recommendations. As any estimate will be based on some degree of assumption, it is important that all these assumptions are documented and contingency included are allowed for variance in the assumptions.

Costs are easier to identify than benefits in terms of their classification (e.g., development costs and operating costs). However, the quantification of each category of costs can be somewhat more difficult. The following factors should be addressed before assessing the costs of a project: estimating guidelines: If the agency has particular cost estimating guidelines or metrics, use of these should be considered; they should of course be reviewed for completeness and relevance before usage; source of costs: It is preferable to use "real" sources for costs rather than using estimates; uncertainty: In many cases there will be uncertainty in cost estimation. Use cost ranges to identify uncertainty and quote maximum cost figures in headline or management summaries; sensitivity analysis: Establish the key cost drivers (the parameters which lead to significant overall cost differences) and complete sensitivity analysis to determine cost range figures; and the "do nothing" option: Ensure that the baseline (or "do nothing") option is included in costing alternative courses of action (e.g., the costs of lost market share if nothing is done). Also ensure that the full costs of the baseline option are taken into consideration (e.g., maintenance and repair charges and the effects of downtime as a result of failure).

Activity 1: Identify project which cost can be estimated

Determine project cost estimates based on the business areas, applications, ICT infrastructure components, production site types, and the implementation and support strategies determined in the previous steps.

This is an important part of finalizing the project scope because, if the costs are more substantial than expected, it may be necessary to remove certain project items (infrastructure or application) from scope or look for other cost reduction options.

Activity 2: Develop high-level requirements and project costing estimation

Develop a high-level requirement of a project, considering all major costs associated such as hardware, software (both system software and application software) and data resources and estimate the project costing for every item.

Activity 3: Summarize overall financial cost

Summarize overall financial cost of implementation based on the resource assignments and schedule and consider the relevance of the following cost categories: workforce adjustment; personnel; materials and equipment; facilities; marketing; and training.

Conclusion

If Kazakhstan Public Sector Information and Communication Technology (ICT) Strategic Plan will be accepted by Kazakhstan Government, followed by a government Plan of Action. The KPSICT might been given overall responsibility to coordinate IT efforts, but there is also a Commission for Financial Control and State Procurement under the Ministry of Finance to supervise the introduction of e-Government with an immediate focus upon e-procurement. Project management responsibility might be given to the Centre for the Development Fund for ITC. Cross-agency coordination to achieve a 'one portal' format for supply companies contracted to deal with different ministries and agencies of government, and responsibility to vet the credit-worthiness of these companies and register them, falls to the Centre which can ask the KPSICT for assistance, but ultimately the Commission takes charge. The Commission must meet every six months to monitor progress and is chaired by the Finance Minister.

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