A man in a dark suit and white shirt is looking through binoculars. He is standing in a field of tall, dry grass. In the background, a laptop is visible on a surface. The sky is a clear, light blue.

Strategic Leadership in Information Technology



IT Guide for Executives

World Customs Organization

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Executive Summary

The Guide provides information and insights into the strategic management process concerning the use of Information & Communication Technologies (ICT) in Customs. ICT can contribute to improvements in a wide range of Customs operations, and a Customs administration must prioritize based on its strategic goals and resource constraints. Aligning strategic goals with key performance indicators (KPIs) helps in developing sound planning for ICT projects.

Critical ICT projects necessarily involve changes to Customs laws and procedures. For such projects to be implemented effectively, the senior management must assume ownership of these processes. The Guide establishes clear linkage between the crucial Customs functions outlined in the revised Kyoto Convention, including the need to follow appropriate international standards. Change management is critical for some of the ICT-driven functions. It ensures preparedness on the part human resources. The Guide brings out the critical role of senior management in implementing ICT driven change.

Senior executives of Customs administrations should be fully aware of risks arising from ICT. ICT projects are expensive, requiring clear financial oversight. Projects lose value when they suffer cost and time over-runs, or fail to achieve their business goals. Improper definition and faulty communication of requirements can cause wastage and spiralling of costs. Faulty design and operation of systems can be a source of risk to Customs clearance operations. Awareness of ICT security risks and the potential loss caused by ICT is also necessary. The Guide points to the need to put appropriate governance processes in place to manage these risks.

Senior Customs executives are often involved in ICT procurement decisions. In large projects, the business case is the most important management process in relation to procurement, with major consequences in case of failure. Appropriate contract and performance management processes are necessary in order to mitigate risks of contract failure and for the protection of business value for Customs. The Guide recommends a 'Balanced Scorecard' approach to managing ICT performance.

To be sustainable and coherent, large ICT solutions must follow sound architectural principles. Major and minor procurement decisions must fit into the overall business, technology, security and data architecture. It is therefore important for administrations to develop and maintain the appropriate architectural descriptions. Lastly, ICT Governance frameworks help ensure that all critical processes and function to manage ICT exist in the organization.

Chapter 1: Strategic Planning & ICT

"If you fail to plan, you are planning to fail!"

Benjamin Franklin

Introduction

The planning process exists in all organizations, whether government or private sector. The level of sophistication and maturity can vary between organizations, but the fundamental approach is quite consistent and will be familiar to senior executives, regardless of industry or country.

Such approaches may include a generic approach based on a "Plan-Do-Check-Act" process that is commonly used in Quality Management systems. PDCA provides an iterative approach to enable continual improvements to take place.

At the basic level, it may involve the need by the leadership to prioritize limited resources in order to achieve organizational objectives. At the more sophisticated level, it may involve the development of a vision, strategies, plans and measurements to enable a large, complex organization to coordinate its actions to achieve the key objectives.

In essence, strategic management simply refers to "the process of creating an organizational strategy, based upon a mission and vision, and keeping the organization on course"¹. A typical strategic management process is a multi-disciplinary series of activities that involves internal, as well as external, stakeholders and will require a Customs administration to:

- Acquire an understanding of the operational context, and the key internal and external drivers that can have an impact on the organization;
- Identify the key goals that need to be achieved;
- Develop effective strategic responses and operational plans that take into account the internal and external drivers in order to achieve the established goals.

The Balanced Scorecard

The Balanced Scorecard is a strategic management tool that was developed in the 1990s by Robert Kaplan and David Norton. It enables an organization to holistically organize and understand the cause-and-effect relationship of strategies, plans and results. The traditional Balanced Scorecard was targeted at private sector businesses and comprised 4 perspectives: "Revenue", "Customer", "Internal Processes" and "Learning & Growth".

Subsequent implementations by non-profit and government organizations led to customizations as such organizations were not purely profit-driven, or simply found it difficult to define their "customers". In such cases, the "Revenue" perspective may be replaced with other more relevant perspectives, such as "Law Enforcement", "Trade Facilitation" or, more generically, "Regulatory Outcome", or with other perspectives relevant to the organization's vision and mission; and the "Customer" perspective may instead be termed as the "Stakeholders" perspective, to allow for broader and more appropriate coverage of the different strategic objectives.

¹ WCO Development Compendium, pg. III-4

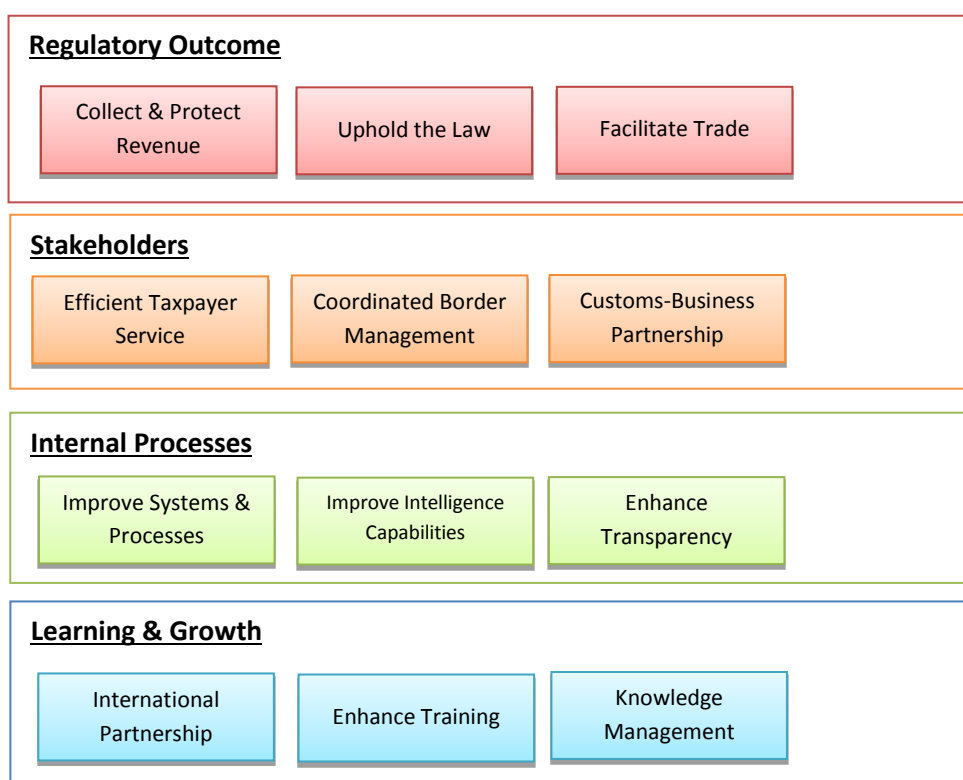


Figure 1: Sample Balanced Scorecard

The Strategic Objectives of Customs

A generic Balanced Scorecard for a Customs administration may be expressed visually as shown in Figure 1 above. In this sample, in place of the “Customer” and “Revenue” perspectives, the “Stakeholders” and “Regulatory Outcome” perspectives are used.

Each coloured rectangle represents a strategic objective that is related to the perspective. In order to ensure alignment between strategies, plans and goals, it will be necessary to translate this strategic document into working documents aimed at different levels of staff, and based on the diverse technical areas that they are involved in. An example of this cascading process is shown below:

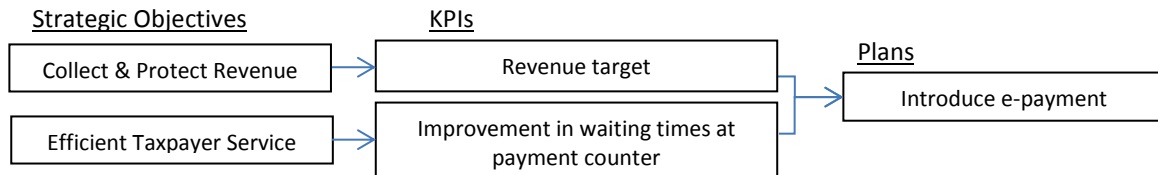
Regulatory Outcome		
Strategic Objective	Key Performance Indicators	Plans
Collect & Protect Revenue	<ul style="list-style-type: none"> - Revenue target 	<ul style="list-style-type: none"> - Identify high-risk areas for enhanced checks - Enhanced recovery against public debtors - Introduce e-payment (1)
Uphold the Law	<ul style="list-style-type: none"> - Number of smuggling cases detected - (Long-term) reduction in number of serious smuggling cases 	<ul style="list-style-type: none"> - Increased border patrols - Improve intelligence sharing (2)
Facilitate Trade	<ul style="list-style-type: none"> - Improvement in clearance times 	<ul style="list-style-type: none"> - Redeployment of manpower to improve clearance during peak periods - Improve border processes (3)

Stakeholders		
Strategic Objective	Key Performance Indicators	Plans
Efficient Taxpayer Service	- Improvement in waiting times at payment counter	- Improve queue management - Introduce e-payment (1)
Coordinated Border Management	- Number of coordinated inspections - Number of joint operations	- Negotiate MoU with partner government agencies - Improve border processes (3) - Improve intelligence sharing (2)
Customs-Business Partnership	- Increase in participation in engagement events - Improvements in satisfaction survey	- Establish formal Customs-Business Partnership structure - Organize engagement events

The first two perspectives, “Regulatory Outcome” and “Stakeholders”, are more externally focused, requiring the formulation of plans to address a process that often involves external drivers, such as taxpayers, partner government agencies and trade associations.

It is not always necessary to have distinct Key Performance Indicators (KPIs) and action plans for each strategic objective. It should be recognized that strategic objectives interact with each other, and action plans can contribute to different strategic objectives and KPIs. Hence, it is necessary to be flexible and clear-minded about such possibilities.

As shown in the above example, “Introduce e-payment” can positively contribute to more than one strategic objective and the corresponding KPIs:



As the tables listing the plans under the different strategic objectives show, the plans numbered (1), (2), (3) and (4) recur across different strategic objectives and can contribute to different Key Performance Indicators.

Internal Processes		
Strategic Objective	Key Performance Indicators	Plans
Improve Systems & Processes	- Number of improvement projects identified	- Improve project management - Improve documentation on work instructions and standard operating procedures (4)
Improve Intelligence Capabilities	- Number of intelligence-led cases	- Reorganize intelligence functions - Improve intelligence sharing (2)
Enhance Transparency	- Increase in website traffic - Improvement in usefulness rating in website - Improvements in perception rankings	- Enhance website - Promote self-service through public engagement

The “Internal Processes” perspective, as the term suggests, focuses more on the internal dimensions of the organization, and the KPIs and plans will be more focused on the internal work areas of the organization that need to be improved in order to support the “Stakeholders” and “Regulatory Outcome” perspectives.

This perspective will also have a very strong influence on the “Learning & Growth Perspective”, as shown below.

Learning & Growth		
Strategic Objective	Key Performance Indicators	Plans
International Partnership in Training	<ul style="list-style-type: none"> - Conclude MoU with neighbouring Customs - Number of joint international activities 	<ul style="list-style-type: none"> - Identify potential MoU partners - Organize networking / knowledge exchange events with foreign counterparts
Enhance Training	<ul style="list-style-type: none"> - Number of training hours per officer 	<ul style="list-style-type: none"> - Implement training needs analysis and training roadmap - Undertake staff engagement to raise awareness on training
Knowledge Management	<ul style="list-style-type: none"> - Increase in intranet website traffic - Improvement in usefulness rating in intranet website 	<ul style="list-style-type: none"> - Enhance intranet to facilitate self-learning & knowledge sharing - Improve documentation on work instructions and standard operating procedures (4)

The “Learning & Growth” perspective focuses on the capacity building needs and organizational development aspects of the organization. It completes the iterative, continual improvement process by bringing focus to the most essential element of any organization: its people, as well as the systems and processes needed to empower, improve and manage them.

ICT & the Balanced Scorecard

It becomes clear by this point that there is no strategic objective specifically catered to ICT, but many of the plans formulated have an ICT dimension. They include:

- E-payment to improve revenue collection;
- Intelligence sharing with partner government agencies;
- Improving documentation of work processes;
- Website enhancements for public engagement and improving transparency;
- Intranet enhancements for improving learning and knowledge management.

Hence, while the Balanced Scorecard has not included a strategic objective that is directly relevant to ICT, ICT has become a strategic enabler for many of the organization’s strategic objectives. It is with this in mind that we come to the obvious conclusion that ICT is a means to an end, to achieve the necessary strategic outcomes, and not an end in itself, to be done for its own sake.

It is therefore necessary for operational units to work in close collaboration with their ICT counterparts, which may include their IT division, as well as with vendors, suppliers and consultants

in order to ensure that there is clear alignment between the organization's strategies and the ICT systems needed to support these strategies.

The need for close collaboration between operational units and their ICT counterparts is made clear in a survey conducted by McKinsey & Company. The survey received responses from more than 700 executives from the private sector, and the results revealed that where there was active involvement on the part of the Chief Information Officer (CIO) in shaping an enterprise-wide strategy, much higher IT effectiveness was reported.

Where CIOs are more involved in business strategy, respondents report more effective IT performance

% of respondents*, by function

	CIO is very or extremely involved in shaping business strategy
	CIO is somewhat or not at all involved in shaping business strategy

Processes where IT organizations are completely effective or very effective**

IT executives, n = 383			Non-IT executives, n = 380		
Managing IT infrastructure	<div></div>	55%	Working with business leaders to improve existing systems or functions when asked	<div></div>	49%
	<div></div>	38%		<div></div>	24%
Actively managing IT organization's health and culture (not only its performance)	<div></div>	47%	Partnering with business to develop new technology-supported business capabilities	<div></div>	47%
	<div></div>	10%		<div></div>	18%
Driving technology enablement or innovation in business processes and operations	<div></div>	38%	Delivering new projects or enhancements on time and within budget	<div></div>	43%
	<div></div>	15%		<div></div>	29%
Governing IT performance	<div></div>	37%	Proactively engaging with business leaders on new ideas or enhancements to existing processes and systems	<div></div>	39%
	<div></div>	21%		<div></div>	21%
Targeting places in organization where IT can add the most value	<div></div>	33%	Implementing innovation ideas developed by frontline staff or middle management	<div></div>	25%
	<div></div>	15%		<div></div>	12%

*Respondents who answered that their IT organizations are "not at all effective," "slightly effective," "somewhat effective," or "don't know" with respect to each process are not shown.

**Out of 14 processes the survey asked about. The processes shown here reflect the largest percentage-point differences between respondents who say their CIOs are very or extremely involved in shaping their organizations' business strategies and those who say their CIOs are somewhat or not at all involved.

Source: Why CIOs should be business strategy partners, McKinsey & Company, Feb 2015

When applied to a Customs context, the above chart leads us to some very obvious insights:

- Customs officials are not IT experts and are not always well equipped to identify where ICT supports key organizational objectives;
- Partnership between Customs specialists and IT specialists can lead to better implementation of ICT projects to drive organizational performance and results;
- ICT needs to be elevated to a strategic level, in order for it to achieve its role as a strategic enabler.

Different Types of Planning

The strategic planning process is the over-arching framework that provides the context for the administration's forward planning. But it is also necessary to establish specific planning processes to ensure that strategic aims are translated into action and results. This includes project planning and business continuity planning.

Project planning refers to the management of planning and control of specific projects under the Strategic Plan, so that specific system developments and reforms are tied in with the big-picture objectives of the Strategic Plan.

Planning for individual projects is needed to:

- Define the specific objectives of the project and identify constraints;
- Identify the scope and boundaries of the project to avoid overlap;
- Identify the relationship to other projects or systems to ensure coordination;
- Establish a timetable specifying what has to be done, by whom, by when, and the costs.

Project planning will be covered in greater depth in Chapter 3.

Business continuity planning refers to the overall process of developing an action plan to ensure the continuation of business, should business-critical systems or facilities become unavailable. For Customs, it refers to the ability of an administration to maintain the collection of duties and taxes, the control of goods and people crossing the border, and the uninterrupted and speedy clearance of goods and people in international trade and travel.

Business continuity planning will be covered in greater depth in Chapter 4.

Conclusion

The strategic management process is important for Customs in its planning and execution of tasks. Such a process is not limited to ICT planning. It is an organization-wide activity that aims to encompass the diverse aspects of an organization's purpose for existence and the supporting activities that need to take place in order for it to undertake improvements, establish priorities and measurements for essential tasks, and ensure that the organization is well managed.

The Balanced Scorecard is one of many possible tools that can be used to develop such a strategic blueprint. By virtue of the cross-disciplinary and multi-faceted nature of any complex organization, this strategic blueprint will need to be developed with inputs from both Customs specialists and managers, as well as with expertise from supporting functions such as administration, human resources, and ICT.

This approach ensures that as senior management undertakes its strategic planning activities, it is able to understand the cause-and-effect relationship between different activities, and their different dimensions – a plan to improve processes will inevitably interact with plans to review internal processes, partnership projects with partner government agencies and trade, developments of ICT systems, human resource planning, and budgetary requirements.

Hence, it is essential to take all these things on board and integrate them into a manageable and transparent management dashboard to facilitate effective management and informed decision-making.

Chapter 2: The Strategic Dimensions of ICT

“The first rule of any technology used in a business is that automation applied to an efficient operation will magnify the efficiency. The second is that automation applied to an inefficient operation will magnify the inefficiency.”

Bill Gates

Introduction

The idea of deploying ICT in a holistic manner that is aligned to organizational strategies and objectives, so that it becomes a strategic enabler to improve performance and results, is often easier said than done. Very often, organizations fall into the trap of looking at ICT as singular systems to support specific functions, and as the default response to improve a certain process.

This leads to a silo approach in ICT implementation and causes the organization’s ICT deployment to become uncoordinated, reactive and ineffective. Within the Customs context, the strategic value of ICT deployment will naturally be closely linked to the organization’s purpose and function. And where Customs-Business is concerned, the Revised Kyoto Convention provides us with the first point of reference, and the role of senior management in managing an ICT project.

The Revised Kyoto Convention

Chapter 7 of the Revised Kyoto Convention addresses the “Application of Information Technology”. In addition to this, the General Annex Guidelines for Chapter 7 refer to how the application of IT relates to other provisions in the General Annex, namely:

- 3.11, 7.2: Use of UN Layout Key and use of international standards for electronic information exchange;
- 3.18: Lodging of supporting documents by electronic means;
- 3.21: Lodging of goods declaration by electronic means;
- 6.9: Use of risk management in Customs control;
- 6.10: Evaluation of traders’ commercial systems to ensure compliance with Customs requirements;
- 7.1: Use of IT to support Customs operations;
- 1.3, 6.8, 7.3: Cooperation with the trade;
- 9.1. 9.3: Transparency of information.

This provides Customs administrations with an idea of what “quality implementation” of information technology means in the Customs context, and informs us about the strategic considerations that are required to shape ICT developments in a way that achieves the organization’s strategies and objectives.

The goal of every Customs administration is to preserve value in the international supply chain by improving effectiveness of cross-border controls so that cargo flows are uninterrupted, borders remain secure and leakages of revenue are plugged. Managers from Customs and trade understand this value in terms of effectiveness of controls and the efficiency of the supply chain. The goal of ICT is to support these efforts and assist Customs and trade in achieving the business goals by bringing

to bear ICT's rapidly growing capabilities. It may even be argued that many of these challenges cannot be tackled unless ICT is deployed.

More Effective Customs Control

An electronic declaration system provides a quantum leap in productivity and capabilities in Customs control, and the near ubiquity of these systems – that range from ASYCUDA to Single Window systems – means that they are no longer a novelty, but the norm. The availability of electronic data allows for risk management to be deployed in a more consistent and reliable way, so that shipments that meet specific risk parameters can be highlighted for further checks.

More Efficient Customs Clearance

The consistent and reliable processing of electronic declarations also provides opportunities for automation, so that routine transactions that are not flagged for further checks can be cleared immediately, while allowing officials at the border to focus on higher-risk shipments.

Uniform Application of Customs Law

By integrating regulatory requirements as automated processing rules in a Customs system, we ensure that the same types of transactions are always processed in the same way, without the subjectivity of human intervention. In this way, all trading entities benefit from a consistent and predictable regulatory process.

More Efficient Revenue Collection

An electronic system can include electronic payment functionalities to make it easier for taxpayers to pay the correct amount of duties and fees assessed. Additionally, having clear and timely information on outstanding amounts and bad debts also allows Customs to take action more quickly.

More Effective Data Analysis

Trade statistics are important to governments for economic analysis and trade policy negotiations. Businesses also benefit from having clear trade statistics for market research. Just as electronic data enables Customs to apply risk management more effectively by making electronic data available in a structured format, the same capability allows for greater ease in compiling trade statistics, and enhances business intelligence.

Improved Data Quality

By including data validation checks at the point of input, systems also ensure that only information in the correct format, or information that is cross-checked against an internal database, can be submitted. This reduces data-entry errors and prevents unvalidated information from being submitted (e.g. non-existent address or trader identifier), and ensures that the information received can be reliably used for risk management, revenue collection and statistical reporting.

Decision-Making Responsibilities of Senior Management

The role of senior management in the implementation of ICT projects is very important. A challenge that often arises for the senior management official is that he or she may be required to make decisions of a very technical kind, without fully understanding the nature of the technology itself. It is a reality that while senior management is not directly involved in the technical work of developing an ICT system, senior management officials are ultimately held accountable for the success or failure

of such systems due to the serious financial and other losses that can result from lapses in planning and management.

As mentioned in Chapter 1, the business of senior management is strategic management, not micro-management. Senior management needs to establish the positive environment necessary to implement the project, and the proper governance processes necessary to steer its outcomes.

Political Will

UN/CEFACT Recommendation 33, “Recommendation & Guidelines on establishing a Single Window”, highlights the importance of political will as a key factor in establishing a successful Single Window system:

The existence of strong political will on the part of both government and business to implement a Single Window is one of the most critical factors for its successful introduction. Achieving this political will requires proper dissemination of clear and impartial information on objectives, implications, benefits and possible obstacles in the establishment of the Single Window. The availability of resources to establish a Single Window is often directly related to the level of political will and commitment to the project. Establishing the necessary political will is the foundation stone upon which all the other success factors have to rest.

In fact, this holds true for all government ICT projects. As a regulatory agency, Customs is not the originator of political will. It is the implementer. Hence, it is the responsibility of Customs senior management to bring this to the attention of the higher level decision-makers at the policy level, including senior Ministry officials, as well as politicians.

The WCO Single Window Compendium identifies three streams for policy development:

- The Problem stream: representing operational level indicators and information to raise awareness of issues on the ground (e.g. workload indicators, field reports and events);
- The Policy stream: representing broad themes framed in terms that policy makers are familiar with (e.g. Customs modernization, regional integration, civil service reform, e-government);
- The Political stream: representing issues that would resonate with the political elite (e.g. public opinion, pressure groups and leadership renewal).

The ability to recognize the trends and emergence of these three streams is essential in order for any senior management-level leader to mobilize and rally the support necessary to secure funding and approval, and mandate for any far-reaching ICT implementation.

Donor Engagement

The role of donors in financing Customs reforms is also an important part of senior management’s agenda. Strategic Plans and reform programmes require resources, and where the national budget is unable to provide the necessary funding, donor engagement becomes crucial in order for the planned activities to take off.

Similar to the need to rally political will, there is a need to rally donors’ interests and frame Customs reforms in ways that align with donors’ priority areas. Common issues encountered include situations where development assistance does not directly target Customs reforms, or even when it

does, it does not reflect the needs of Customs services and does not take into consideration Customs inputs, because of Customs' limited role in policy formulation at higher level.

In all of these situations, the underlying political reality is that Customs is often an unsung hero. While Customs is performing functions that are essential for trade facilitation, border security and protection of society, the importance is not well recognized by the political leadership. Hence, it is crucial that senior management plays an active role in raising awareness through their involvement in Ministry-level decision-making processes, so that Customs can be more prominently featured when donors request information from the political leadership.

This involves:

- Ensuring that Ministers receive specific information on Customs' reform needs, so that these inputs can be communicated to donors;
- Highlighting the contributions of Customs to political priorities;
- Highlighting the achievements of Customs and improving the positioning of Customs so that it is more aligned with political priorities;
- Mobilizing support to create a positive political climate towards Customs reform.

Once that visibility has been secured, it remains necessary for Customs to make its case to donor organizations, and this is facilitated by:

- Having a clear vision, process and plan for modernization that is based on government policy, WCO diagnostic missions and recommendations from other institutions;
- Understanding donors' requirements;
- Engaging with donors to understand funding options;
- Demonstrating commitment and ownership of reform strategies;
- Establishing communication channels to derive synergies, where multiple donors are involved.

All of this groundwork will eventually need to be put to the test through a donor meeting, or a donor conference. At this stage, it will be necessary for the administration to demonstrate the necessary "follow-through" by organizing the event in a manner that demonstrates political and stakeholder support, and addresses the requirements of the donor, as well as of national policy. This will involve event management that includes promotional activities, event logistics, and invitation of keynote speakers, leading to the successful delivery of a donor engagement event. The measure of success, ultimately, will be the support of the political leadership, and the tangible support of donor organizations for the administration's reform agenda.

Use of International Standards

A strong criterion of senior management decision-making in the development of ICT systems is the need to ensure that the systems developed are conformant with international standards. This includes non-technical, as well as technical, issues that need to be considered.

Non-technical issues include the process models, such as the Revised Kyoto Convention and the SAFE Framework of Standards, which deal with Customs procedures and supply chain security issues, respectively, as well as international conventions, such as the World Trade Organization Trade Facilitation Agreement (TFA).

Technical issues include the need to ensure interoperability between different government and non-government stakeholders, through the use of common technical standards. In this connection, the WCO Data Model provides Customs, as well as partner government agencies, with a common language to collect, exchange and process data.

The WCO Data Model is a set of carefully combined data requirements that are mutually supportive and which will be updated on a regular basis to meet the procedural and legal needs of cross-border regulatory agencies such as Customs, controlling export, import and transit transactions. It is consistent with other international standards such as the United Nations Trade Data Elements Directory (UNTDDED).

By using the WCO Data Model for the design of Customs IT systems, administrations gain the assurance of semantic interoperability, i.e. the assurance that data that is collected from the private sector is consistent with international practices, and means the same thing from country to country, and thereby provides the foundation for future harmonization with partner government agencies that is essential for the development of a Single Window environment.

Change Management

The implementation of ICT systems cannot be divorced from the broader need to manage change. An ICT system is an artefact – a man-made construct that serves as a resource multiplier and enabler for greater efficiency and effectiveness in Customs functions. Ultimately, it is necessary for human beings to harness the IT tools to do the job well. This is a process that requires deliberate and extensive planning and management inputs.

The Revised Kyoto Convention Guidelines on Application of Information and Communication Technology provide a 10-step process for change management that senior management officials should reference to guide their ICT planning and implementation journey:

Step 1: Focus on the business process and not on the function

Processes illustrate the perspective through which the organization interacts with its clients and provide a more holistic approach.

Step 2: Development of a process profile

Without proper documentation, a process cannot be properly understood. A process that is not well understood cannot be measured, and cannot be improved upon. Proper documentation and analysis will identify opportunities for streamlining and improvements.

Step 3: Process mapping

Processes evolve over time, based on changes in legislation, ground conditions, or the introduction of new IT systems. An officer is often only involved in one step of the process, and has limited awareness of the upstream and downstream interactions of his work. By mapping processes, senior management, as well as the operational level officer, acquire a new perspective to their work by understanding the “bigger picture”.

Step 4: Measuring processes

To support the development of process profiles and process mapping, it is necessary to measure the process so that Customs can determine the current resource required, time taken, and performance level of the process, and set quantifiable Key Performance Indicators to drive improvements. This

should be integrated into the organization's Balanced Scorecard so that it becomes the way in which senior management can influence behaviour, as well as the results on the ground.

Step 5: Learning from others

Ideas or proven processes that have been implemented by other Customs administrations can provide valuable information and save time, and allow us to learn from the experience of others. This requires an administration to develop both as an inquisitive, learning organization, and as a culture that is open-minded in its efforts to learn from others and adapt these lessons to its domestic context.

Step 6: Process redesign

Using the information from the previous 5 steps, Customs can map out new processes, eliminating duplications and inefficiencies, and build a new process to achieve improvements.

Step 7: Balance processes and technology

The benefits and limitations of technology should be clearly recognized so that technology becomes the efficiency multiplier for a process. Some processes must be automated in order to achieve the consistency and quality implementation necessary for improvements, while human judgment remains necessary in certain cases where automation can lead to acceptable risks.

Step 8: Manage process change

Process changes must be prioritized. It is not possible to change everything at the same time due to resource and capability constraints. Change must be focused on the areas where there is the most readiness, and where it would make sufficient impact.

Step 9: Prepare people (staff and clients) for change

People are inherently resistant to change. Without proper communication, they will feel threatened, insecure and unwilling to contribute to the change. It is necessary to win "hearts", as well as "minds", and to involve all relevant parties, so that they will recognize the benefits and share in the ownership to bring about the change.

Step 10: Continue process improvement

Business process re-engineering is an iterative process. By formulating processes and structures to guide the previous 9 steps, senior management can build a sustainable process for continual improvement. There are no perfect systems or implementations. Sustained effort is necessary to ensure that ICT systems meet user requirements, new functions are added and obsolete functions are removed.

Conclusion

The role of senior management in ICT projects is to provide visionary leadership and decision-making structure to enable operational improvements to take place. A Director-General, Commissioner or Chief Executive may not always possess an in-depth technical knowledge of ICT. However, they do need to have an appreciation of what ICT can do for their core business, set up the enabling environment to allow the relevant experts to come forward, and ensure that the proper governance is in place so that experts know their boundaries and stay focused on the strategic aims of the organization. One of the biggest challenges for senior management will be change management, and

this will be something that they must devote their attention to, so that political will is translated into tangible action, and tangible action corresponds to their overall strategic aims.

Chapter 3: ICT Project Management

"It's not a faith in technology. It's faith in people."

Steve Jobs

Introduction

Leadership by vision alone is not sufficient to ensure that an ICT project is delivered. It is also necessary for senior management to have an understanding of the various activities involved in developing a system, and to exercise the necessary supervision over the various activities, so that they can ensure proper management, alignment and governance.

Earlier, Chapter 1 dealt with the importance of strategic planning in establishing the necessary roadmap for medium to long-term developments. A Strategic Plan may serve as a guide for 3 to 5 years, with specific annual action plans to bring about the change in a gradual manner.

Senior management will have to be actively involved in the Project Steering Committee to ensure proper development and delivery of the various ICT systems, and their alignment with the Strategic Plan.

Detailed Investigation & Analysis of Existing System

A Strategic Plan will typically look at the broad themes that need to be addressed by the organization. As articulated in Chapter 1, various technology enablers would have been identified to make revenue collection more effective, or to make procedures more facilitative. These broad themes provide the necessary impetus to kick-start a feasibility study. It will be the responsibility of senior management, through the Steering Committee, to endorse and approve the results of a feasibility study, and provide the necessary mandate for the next phase of work to take place.

Detailed investigation and analysis of existing system(s) is required because ICT does not take place in a vacuum, and it is very rare for a country or an administration to be able to "start from scratch" when developing ICT systems. There will be existing processes and workflows already in place that have been developed over time to meet specific needs, or even solutions that have been developed as part of a previous Strategic Plan that will have to be reviewed to ensure continual improvements.

The person(s) responsible for these tasks would typically have to:

- Interview staff at all levels;
- Consult procedure manuals and standard operating procedures affected;
- Analyse the information to produce a User System Specification.

The User System Specification should describe in layman's terms the main features of the new system, and how it will affect management, staff and the existing ways of doing things.

This is where senior management will have to consider the change-management issues addressed in Chapter 2, in addition to other important decisions that may include:

- The existence of existing systems and contractual obligations, and the cost of retaining or retiring them;

- The need for interoperability with stakeholder agencies, and the need to follow relevant national laws or international standards and conventions;
- The pace of change and the capacity of the organization to accept this change;
- Differentiation between “must-have” and “good-to-have” functions and the respective cost implications between the two;
- The need for possible trade-offs in order to meet budgetary and capacity constraints.

Once the User System Specification has been approved, it should no longer be changed. Senior management, as well as project leaders, should be very conscious of the fact that changes to project scope and functionality after the work has started can lead to delays and increased project costs.

This does not mean that viable changes will never be included, but as part of proper project management and corporate governance, senior management needs to impose the necessary discipline through the Steering Committee to ensure that projects stay on track, on time, and on budget. Issues that have not been uncovered, or that have not been anticipated during the documentation of the User System Specification, can always be included as part of the continual improvement agenda and built into subsequent system enhancements.

In-House Development or External Procurement?

After the acceptance of the User System Specification, the administration will need to consider how the Specification will be translated into an actual system. Systems can either be developed through in-house expertise, through the procurement of necessary expertise and equipment, or through a mix of both.

In view of the complexity and rapidly evolving nature of modern ICT systems, it is not always possible for Customs administrations to have in-house expertise in the development of ICT systems. The involvement of “off-the-shelf” systems developed by companies specializing in e-government solutions means that Customs administrations can choose from different product and service offerings to meet their needs.

In-House Development

An administration that possesses the necessary in-house expertise can proceed to perform the necessary detailed system design once the User System Specification has been approved. This involves the development of a Program Suite Specification to provide the in-house computer programmers with all the information about the computer functions that they need to write as part of their programming tasks.

From there on, the programmers would:

- Design the program structure, documenting the detailed logic of the program;
- Do the necessary coding;
- Prepare a test plan and collect test data;
- Debug the programs;
- Assemble the final documentation.

Documentation is an essential part of this process and should be something that senior management is keenly interested in. Without proper documentation, it becomes very challenging to develop the necessary **User Manual** and **Operations Manual** to enable the system to be properly deployed.

The **User Manual** refers to documentation that will instruct user departments in the operations required to properly operate the system and the actions to be taken in the event of system failure or system error. The User Manual must be accessible for reference purposes throughout the operational life of the system and be updated whenever changes are made to the system. The User Manual is also an important part of the change management process, for training internal staff.

The **Operations Manual** refers to the permanent reference document used by IT professionals for information on the system to be implemented, and the routine maintenance tasks necessary to ensure its effective operation.

The new applications developed in-house will also have to be tested in a staging environment before they can be deployed for actual operations, and proper test data will have to be compiled to ensure that the product satisfies both developers and users.

To prepare for deployment, changeover instructions will be required for both the users and for the IT department. These will specify in detail the procedures required for the changeover from the old to the new system. This is an area where senior management, through the Project Steering Committee, must closely monitor developments and ensure that proper **business continuity planning** has taken place.

Hence, while senior management will not be involved in the specific technical development of the ICT system, they need to ensure that the proper steps have been followed and that all planning and documentation has been undertaken. This is in order to ensure that the project will have a higher probability of success and that, in the event that unforeseen circumstances occur, proper business continuity and recovery procedures are in place so that business-critical functions can continue.

External Procurement

Customs administrations which do not have the in-house expertise to develop their own systems may also opt to install an entire automated system on a “turn-key” basis, in which hardware, software and related service and maintenance contracts are procured as one procurement exercise, or to conduct separate procurement exercises for different components, and integrate them.

In this situation, Customs staff will have to work with external consultants, business analysts, programmers and engineers to ensure that the requirements are properly captured and understood, the milestones are being met, proper testing, training and user-acceptance has taken place, and the required documentation is delivered.

In both the case of in-house development or external procurement, the risk of operating a “black-box” system that has not been properly documented and over which users have very limited understanding and control is a very serious one.

Inadequate understanding and training regarding ICT systems implemented:

- Affects productivity and effectiveness;
- Hinders business continuity planning and recovery in the event of system failure;
- Prevents continual improvements;
- Leads to vendor lock-in, where administrations become overly dependent on external vendors for their basic needs.

The Procurement Process

Even when the software is being developed with in-house capabilities, administrations may still have to undertake procurement for new hardware – computer servers, desktops, networking infrastructures, and their related maintenance or service contracts.

In the case of in-house development, if new computer hardware is required, it will have to be procured in parallel with the development, so that the equipment is ready for installation and testing once the software is ready.

Where entire systems (i.e. hardware, software and services) are being procured, it is necessary to have undertaken sufficient planning and due diligence to ensure proper and on-time delivery of goods and services.

Senior management need to carefully monitor and control procurement activities through the Steering Committee to ensure that a detailed analysis has been undertaken, the equipment to be procured meets the needs of the administration, and its procurement is financially prudent.

Request for Proposal (RFP)

Most government procurement exercises start with the issuing of the RFP to a list of vendors that have been identified as likely to be capable of submitting a serious bid. This will specify, as a minimum:

- The mandatory requirements the computer system must be capable of performing, including the requirements for meeting computer standards such as compatibility, upgradability, system recovery and security, as well as tools and utilities to be included;
- Workload requirements describing the processes that will be performed, and the performance levels expected;
- Vendor support, listing all support requirements to be met by the vendors, including site planning, electrical installations, air conditioning, fire prevention, auxiliary power supply, installation schedule, pre-installation computer time, line test demonstration, on-site support, personnel, training needs and maintenance requirements;
- Reliability, to be expressed in terms of a percentage of scheduled operating time, and penalty clauses to ensure that adequate maintenance is done to ensure that the reliability criteria are met;
- Contractual arrangements, specifying the formal contractual obligations that will be entered into, including exact delivery dates, payment dates, penalties, dispute resolution, and after-sales services.

It will also be necessary to provide a number of “bench-mark” problems to potential suppliers. These may include test data or algorithms to allow them to verify if the proposed systems meet the standards required by the administration, and to submit the results as part of the final proposal.

Evaluation of Responses to RFP

Much of the information required will be highly technical and this is necessary in order for the project teams to perform the necessary comparisons. Companies that are not able to provide sufficient information, even after enquiries from the administration for clarification, should no longer be considered and the reasons should be documented to ensure transparency.

It will be the job of the project teams to distil the essential aspects of each RFP response received, and communicate them to the Steering Committee for its consideration and decision. The evaluation will typically form three parts:

- Technical Evaluation: ensuring that the proposal meets the mandatory requirements set out in the RFP;
- Cost Evaluation: comparing the costs of various possible options provided by the various suppliers, such as outright purchase, lease, and lease with option to purchase. Each option will have its respective pros and cons and will have to be contextualized within the administration's specific policies, needs, and budget;
- Benchmark Evaluation: shortlisted suppliers could then be invited to perform a live test and demonstration to re-check the benchmark results in a supervised setting.

Installation & System Implementation

Once the necessary procurement decisions have been made, the installation and implementation of the ICT systems can take place and will involve the following activities:

- Installation
 - o Site preparation plan
 - o Staffing plan
 - o Data Communication Plan
 - o Delivery Schedule
 - o Logistical Support Plan
- Implementation
 - o System Testing
 - o File Conversion
 - o User Training
 - o Changeover

The Steering Committee will once again need to provide the necessary supervision to ensure that the relevant activities are well coordinated, as well as need to provide the necessary support and authority for the respective project teams to perform the necessary activities.

Coordination for Installation

Where space is being dedicated within the administration's premises for the installation of new equipment, it will be necessary to ensure that the location has been adequately prepared. The floor-plans for the facility should be made available and the detailed operating procedures for the facility prepared beforehand, so that senior management will have the confidence that there will be no serious complications during the installation. It is common industry practice that while system installation is the responsibility of the supplier, site preparation is the responsibility of the administration. If the site is not ready, or not suitable for the installation, the administration will be responsible for the delays.

Staffing and human resource planning are another important consideration for senior management. Where capabilities do not exist within the administration to operate the new facility or systems, staff will either have to be re-trained, or recruited to bring in new talent. This will have to be done in coordination with the Human Resource department of the administration, and may involve training,

work redesign, redeployment, and recruitment of either fresh graduates or experienced personnel with the necessary qualifications or skill sets.

Existing staff need to be well informed and comfortable with the arrangements made, and induction programmes for new recruits with a different professional profile are necessary to ensure that they can fit in with the administration's work ethics and culture. These are essential change-management aspects that need to be considered by the senior management of an administration, to ensure that resistance to change is minimal, and the administration's ICT plans can be implemented smoothly.

Ultimately, the Steering Committee must recognize that the installation of expensive, mission-critical equipment must be high on the management agenda, and institute the necessary reporting mechanisms so that senior management is kept up-to-date on the various issues by project leaders who are empowered to solve operational problems, and where necessary, senior management can intervene directly when appropriate.

Coordination for Implementation

As with every major project and reform effort, the devil is in the details. However, it is not possible for the Steering Committee and senior management to be involved in some of the very operational details relating to system implementation.

System testing and file conversion, in particular, are very operational and technical tasks that the project teams should be empowered to handle. An important function of the Steering Committee and senior management at this stage should be communication with internal stakeholders to ensure that the necessary tasks are taken seriously, as inadequate testing and problem resolution can have serious implications for the successful launch of the system.

As mentioned earlier with regard to human resource planning, senior management needs to place priority on user training to ensure that existing staff acquire the level of computer literacy necessary to operate computer systems in general, as well as have detailed training on how to use the new systems being developed in their work. In an administration where computer literacy is not high, detailed training programmes will need to be developed to ensure the overall readiness of Customs to use the new systems. The basic computer skills training will have to take place much earlier as a key activity for supporting the Strategic Plan, and possibly performed when the feasibility study is being undertaken.

The changeover is one of the most important activities in the implementation phase, due to its potentially mission-critical nature. The three basic strategies for implementing newly developed systems include:

- Parallel run;
- Pilot run;
- Direct changeover.

In the case of a parallel run, both new and old systems (including paper-based processes if applicable) operate concurrently for a fixed period of time, until the new system is established and functioning optimally, and the old system can be formally retired.

This option is more viable if the two systems are identical in all major outputs, and if staff are available for operating both systems at the same time, while checking and preparing the new one for

official launch. It is not ideal if, for instance, a set of old electronic systems or manual processes are being integrated into a Single Window environment because disproportionate resources will be required from all participating government agencies to ensure the integrity of the previous work process, while ensuring that the new Single Window environment is functioning optimally.

The pilot run involves the identification of a specific location to operate the system, so that resources can be concentrated on that location and progressively introduced at other locations over a period of time. The benefit of a pilot run is that it allows for the implementation team to focus and learn from the experience of one manageable pilot location, and apply those lessons to other pilot sites so that each implementation becomes faster and smoother.

Direct changeover involves the wholesale retirement of the old system by a fixed date, and the introduction of a new system the very next day. This is, on the surface, the neatest way to implement the system, but also the riskiest. The new system will have to be extensively tested to ensure reliability, and personnel will have to be well briefed and well prepared to activate the Business Continuity and Business Recovery Plans in the event of system failure.

All three approaches have their respective advantages and disadvantages and the Steering Committee and senior management will have to fully understand the implications of the decision taken. The exact choice will ultimately depend on the nature of the system to be implemented, the potential impact, and the availability of expertise in the administration to implement the system based on the decision made.

The consequences of unsuccessful implementation of a non-mission critical system, such as a corporate intranet environment, through a direct changeover would be very different from those of a mission-critical system, such as a declaration system or a clearance system, especially if it is being implemented in a location with very high trade volumes. The resources needed for a parallel run will be higher than for a direct changeover, while a pilot run will take more time to reach every location, as compared to a direct changeover.

The capacity of the administration is also very important in determining the best approach for the changeover. An administration with extensive experience, expert manpower and elaborate Business Continuity Plans can potentially mitigate the risks of an unsuccessful direct changeover so that it is a viable option, while an administration that is new to ICT system development may not be comfortable to take such a risk.

Sustainability & System Maintenance

The introduction of ICT systems in an administration is a journey, not a destination. Even after the successful implementation of an ICT system, continual effort is required to ensure that the systems implemented are maintained and continually enhanced.

Reasons for enhancement and maintenance may include:

- Possible bugs or errors that have not emerged during testing;
- Suggested improvements after users gain experience with the system;
- Changes to take advantage of new hardware or software;
- Increase in transaction volumes;
- Change in law requiring new provisions or procedures to be added to the system;

- Introduction of new, related systems;
- Features that were considered, but not included in the final User System Specification due to time or resource constraints.

The ease with which such changes can be implemented, and the ability of senior management to retain oversight over them, to ensure that the various activities remain well coordinated and successfully executed, will depend on the governance framework that was established to maintain the system. After the successful implementation of the system, it is conceivable that the work of the Steering Committee will transition to that of a Management Committee, where performance and sustainability issues of the new system will dominate its agenda. This will be discussed more fully in Chapter 4.

Customer Focus

Government ICT systems ultimately aim at improving the delivery of services to citizens and stakeholders. Hence, these systems cannot be developed in isolation without the cooperation and goodwill of the private sector.

The key operational principles necessary to intensify and advance a Customs-Business relationship, as well as to foster continued buy-in from the private sector on Customs initiatives, include:

- Communication: open and two-way;
- Transparency: clear and mutually agreed information and feedback processes;
- Collaboration: work to seek mutually beneficial outcomes where feasible;
- Inclusiveness: recognize, understand and involve all stakeholders in the process;
- Integrity: conduct engagement in a manner that fosters mutual understanding and trust;
- Accountability: an understanding that both parties have joint responsibilities.

In this context, the need to establish formal dialogue channels between Customs and the private sector is self-evident. This includes the need to undertake formal engagement and consultation with the private sector prior to the development of any new system, so that their views can be included in the development process, and to provide sufficient time and adequate information for them to understand how the changes will affect them, and what they will need to do to prepare for the changes.

The need to establish a help-desk is also important and supports the administration's commitment to serving its clients. It is an important facility to help customers to get used to, and make use of, the new ICT systems being developed by the administration.

A service-centric mindset is also important for identifying the correct Key Performance Indicators to measure the effectiveness of the ICT system being developed and, in doing so, shape the desired behaviours among the administration's officials to achieve these goals.

A service-centric mindset is not built overnight. It is a long-term programme that involves both "hardware", such as a call-centre facility that can handle the anticipated call volumes, and intangible "software", including training for officers to manage enquiries politely and professionally, as well as the necessary knowledge management set-up to allow officers to access information that will allow them to answer queries quickly and correctly.

Most importantly, it is also necessary to inculcate help-desk officers with the correct mindset, so that they will take ownership of customers' queries in order to resolve them conclusively or, in the event that they are unable to do so, escalate them and refer the customer to the correct party to resolve the issue.

Conclusion

The key responsibility of senior management is to steer, manage and decide. But it is only possible to do so if senior management is conscious of the complexity involved in a typical ICT development and implementation process. In view of the extremely high cost of ICT projects and the business-critical nature of ICT infrastructures being developed, awareness and sensitivity to ICT is no longer a luxury, but a necessity for senior management.

The challenge for senior management is to acquire sufficient basic ICT know-how so that they are able to apply their managerial expertise and responsibilities to follow the key developments, and to establish the necessary reporting and monitoring processes so that they can supervise the big picture, without getting lost in the technical complexities and jargon.

Chapter 4: ICT Governance

“A computer will do what you tell it to do, but that may be much different from what you had in mind.”

Joseph Weizenbaum

Introduction

As highlighted in Chapter 1, a strategic management approach like the Balanced Scorecard will identify the strategic objectives important to a Customs administration, and the strategic ICT enablers that can support the administration’s strategic objectives.

The closer the collaboration between Customs operational areas and IT counterparts, the higher the quality of ICT implementation and corresponding results. However, the role of senior management in ICT goes beyond the simple need to list down the systems being developed, and how they can contribute to organizational objectives and results. It is also necessary to develop an Enterprise Architecture approach, so that complex process interactions are properly documented to enhance sustainability, support corporate governance and improve decision-making.

Organizational Risk Management

Risk management is not a new concept for Customs. Drawing on intelligence, information and experience, over time Customs has adopted procedures designed to combat non-compliance or circumvention of Customs laws.

In all Customs administrations, senior executives and managers are required to deliver greater outputs and outcomes with the same, or fewer, resources. Risk management enables a Customs administration to make explicit the choices that underpin its actions. A risk-oriented working method makes transparent the underlying reasons for organizational plans, enhances objective, informed decision-making and provides defensibility. Risk management is an important complement to strategic management.

To return to Chapter 1, it is clear that the strategic objectives identified directly correlate to strategic risk areas that are being addressed as well. In this way, both strategic management – through a tool, such as the Balanced Scorecard – and organizational risk management are aligned.

Regulatory Outcome		
Strategic Objective	Strategic Risk Areas	Related Projects
Collect & Protect Revenue	<ul style="list-style-type: none">- Revenue Risk<ul style="list-style-type: none">o Tax evasion undermines revenue collecting mission of Customs	<ul style="list-style-type: none">- Identify high-risk areas for enhanced checks- Enhanced recovery against public debtors- Introduce e-payment (1)
Uphold the Law	<ul style="list-style-type: none">- Border Security<ul style="list-style-type: none">o Terrorismo Smuggling- Legal<ul style="list-style-type: none">o Measures must be legally enabled	<ul style="list-style-type: none">- Increased border patrols- Improve intelligence sharing (2)

Facilitate Trade	<ul style="list-style-type: none"> - National Competitiveness <ul style="list-style-type: none"> o Reduced growth o Reduced tax base - Infrastructure <ul style="list-style-type: none"> o Congestion o Business continuity 	<ul style="list-style-type: none"> - Redeployment of manpower to improve clearance during peak periods - Improve border processes (3)
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Table 4.1: Alignment of Strategic Objectives and Organizational Risks

The essential point of this alignment goes beyond a conceptual understanding – it must be rooted in a correct understanding of accountability, and responsibility for each task being undertaken. They are not the same thing. “Responsibility” can be shared between different parties, while “Accountability” is never shared, but owned by a single party. A project may require different parties to collaborate and to be responsible for their respective tasks, but the overall accountability resides with the project team, and the project leader.

A project leader may need to work with the Human Resource director to plan for new recruitment, and the Human Resource director would have to undertake recruitment based on the established rules of the department. In the same way, a project leader may require the support of the Chief Information Officer (CIO) or IT director to develop a new system, and the CIO or IT director may have to ensure that the system being developed is in line with the **Enterprise Architecture** because having a stand-alone system that is not interoperable with other systems being developed can have adverse consequences for future maintenance.

In this way, issues that are brought to the Steering Committee for decision-making are fact-checked and coordinated and, where necessary, the Steering Committee can make the decisions needed to de-conflict between differing professional viewpoints.

Enterprise Architecture

The Massachusetts Institute of Technology defines Enterprise Architecture as “the organizing logic for business processes and IT infrastructures reflecting the integration and standardization requirements of the firm’s operating model”.

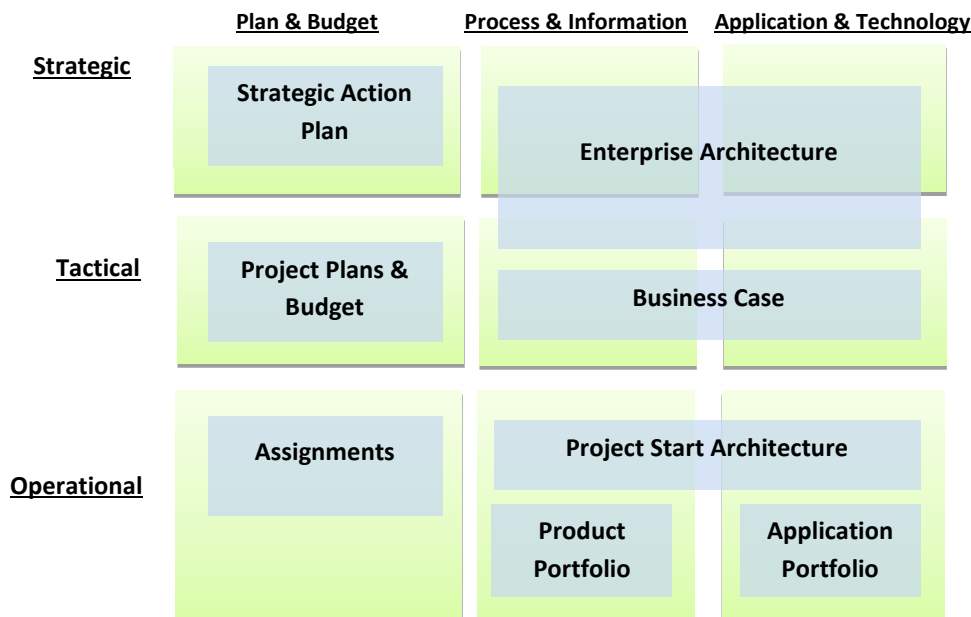
Enterprise Architecture aims to find links between the business imperatives of the enterprise and the deployment of technology in order to achieve alignment between the two. This enables resources to be more optimally deployed, and reduces redundancies and duplications in the design and deployment of ICT solutions.

As previously discussed in Chapter 1, ICT deployment is driven by the organization’s strategic objectives. The involvement of the CIO also leads to more effective implementation and outcomes. Just as the Balanced Scorecard provides the high-level “roadmap” to guide the organization in achieving its goals, Enterprise Architecture provides the corresponding level of detail to ensure that ICT implementation is done in a coordinated and standardized fashion, so that ICT infrastructure costs are well managed, ICT system performance is optimal, and systems can scale to future needs and are sustainable.

In the context of Customs, Enterprise Architecture refers to:

“The fundamental organization of a Customs Administration, consisting of business processes, organizational entities, applications and technical infrastructure components, their mutual relations, the business services provided to the environment, as well as the principles that guide the design and evolution of the Customs Administration’s processes and applications”.

In order to achieve maximum benefits in the implementation of Enterprise Architecture, the architectural design and the surrounding change management and decision-making processes need to be closely linked. The relationship between Enterprise Architecture, strategic management and project management is summarized in the following diagram.



Method Framework (WCO Capacity Building Compendium)

In this way, the linkage between strategic management and ICT projects becomes very clear and provides the necessary context in which senior management can exercise effective decision-making for each ICT development. It makes clear the fact that within an organizational decision-making process, there exist different levels – Strategic, Tactical and Operational (vertical), different aspects within each level (horizontal), and the need for mutual alignment between these aspects.

Hence, Enterprise Architecture is nothing more than a translation of the administration’s Strategic Plan through an ICT-centric perspective, so that it allows for the development of systems that are aligned, interoperable and well maintained.

It remains the case that technical problems need to be addressed at the technical level. Senior management’s focus should remain on the issues of strategic significance.

To take “Revenue Risk” as an example: Customs duties form an important part of a national government’s operating expenditure and would, inherently, be prominently featured as a Strategic Objective. Failure on the part of Customs to effectively execute its revenue collection functions can have serious implications for the national budget. This is something that the Head of Administration is ultimately accountable for.

Hence, any ICT systems being developed in relation to revenue collection will need to be based on this strategic reality, and senior management's focus should be on ensuring that ICT systems developed contribute to mitigating the risk of not collecting enough revenue, and to achieving the revenue targets.

The ultimate aim is to develop the necessary line of sight between the strategic level considerations, and the operational level developments, so that senior management will be able to steer ICT developments in a way that reflects the strategic intent.

Senior Management Role in Steering ICT Developments

As previously covered in Chapter 3, as well as in the section above on Enterprise Architecture, ICT projects are multi-faceted and require planning and coordination across different functions, different dimensions, and different perspectives.

Strategic planning provides the over-arching vision for the administration that serves as a roadmap for both ICT and non-ICT areas.

Project planning provides the details on what needs to be done for every single ICT project.

Business continuity planning provides the details on what to do in the event of unexpected unavailability of a business-critical system.

All of these planning activities also have budgetary, administrative, human resource, risk management and technological dimensions. Attempting to perform each planning activity in isolation can lead to duplications, unclear decision-making and confusion. Hence, it is important to establish a streamlined and efficient decision-making structure to ensure that the different aspects are done holistically, and senior management is able to have a clear overview of the administration's health.

The tasks and profiles of the different Committees can be summarized as follows:

Name of Committee	Level of Participants
Steering Committee (Reporting to political decision-makers, e.g. Ministry, Minister)	Senior management
Responsible for: <ul style="list-style-type: none"> - Providing approval for project commencement - Reviewing progress of key projects (budget, timeline, deliverables) - Providing guidance so that projects are aligned with Strategic Plan - Deciding in the event of conflict, overlap in projects Accountable for: <ul style="list-style-type: none"> - Achievement of organization's core mission and strategic objectives through ICT projects identified 	
Name of Committee	Level of Participants

Sub-Committees (e.g. Human Resource, Information Technology, Risk Management, Business Continuity) (Reporting to Steering Committee)	Head of Department / Branch (i.e. Directors, Heads)
<u>Responsible for:</u> <ul style="list-style-type: none"> - Providing expertise and support for Project Teams - Advising Steering Committee on the issues identified by Project Teams and the actions required to resolve them <u>Accountable for:</u> <ul style="list-style-type: none"> - Governance of areas under its mandate 	
Name of Committee	Level of Participants
Working Committees / Project Teams (Reporting to Steering Committee)	<ul style="list-style-type: none"> - Project leaders
<u>Responsible for:</u> <ul style="list-style-type: none"> - Detailed planning work on the project - Informing Sub-Committees on issues identified and working collectively on actions needed to resolve them - Coordinating with line managers and other Working Committees / Project Teams to ensure synergy <u>Accountable for:</u> <ul style="list-style-type: none"> - Successful delivery of project 	

Table 4.2: Profiles of Steering Committee, Sub-Committees and Working Committees / Project Teams

As shown in Table 4.2, an essential feature of most attempts to manage complex projects like ICT modernization, Coordinated Border Management and Single Window development is the Steering Committee. The Steering Committee typically involves the highest level of management and is also commonly supported by a number of sub-committees or working committees. In this way, operational details can be worked on by the relevant officials that are directly involved, before escalating to the Steering Committee for endorsement and approval.

In this way, Organizational Risk Management, Strategic Management and Project Management dovetail to provide strong clarity over who is “responsible” and “accountable”. This also provides the necessary checks and balances to ensure that proper internal coordination and informed decision-making take place.

Identifying Issues of Concern to Senior Management

A well-defined strategic management process and structure will ensure that all the necessary details relating to strategic planning, risk planning and project planning have been addressed. The challenge lies in distilling these details into proper decision-making inputs for different responsible parties for informed decision-making.

Where reporting is concerned, having too much information is just as bad as having too little. In an environment where conflicting priorities and tight deadlines challenge every single staff member, it is necessary to ensure that the correct level of information is provided to different parties in the decision-making process.

A summary of the key types of documentation produced, their purpose and their intended audience, is shown below and provides some ideas for ensuring that appropriate levels of detail reach the correct audience for appropriate action:

Name of Document	Level of Detail / Information	Purpose	Audience	Governance
Strategic Plan	Moderately detailed, Strategic-Level	Communicate high-level vision	Internal staff & external stakeholders	Key Performance Indicators
Strategic Business Case	Moderately detailed, Strategic-Level	Secure political mandate	Senior management / Steering Committee, Minister(s)	Decision, budget and programme scope
Detailed Business Case	Moderately detailed, Tactical-Level	Provide details on planned organization & activities	Senior management	Decision, timeline of activities and action
Project Plan (including risk management, human resource planning, IT infrastructure, business continuity)	Very Detailed, Operational	Provide specific details on implementation of individual projects	Project Team, Sub-Committees, internal staff (Senior management involvement only necessary for endorsement / escalation)	Project timeline, list of planned activities and status, issues for escalation
Routine Updates	Brief, Operational	Provide details on progress / deviation from planned projects	Senior management / Steering Committee	Decision, revised plans and documented follow-up actions

Table 4.3: Information to Facilitate Governance

Where endorsement and escalation are concerned, senior management approval should not be seen as a mere formality. Due to the direct linkage between ICT projects and Strategic Plans, the high costs involved, and the business-critical nature of such developments, senior management must ensure that:

- ICT solutions are meeting business challenges;
- ICT resources are used optimally with minimum redundancies and duplications in processes;
- The burden of maintaining infrastructures is justifiable and linked to the achievement of key strategic objectives;
- Visibility is maintained over Returns on Investments (ROI) and Total Cost of Ownership (TCO).

Hence, senior management's role in the preliminary stages of planning is essential. However, as the project enters into the operational planning and implementation phase, it is necessary for project teams and project leaders to operate with some discretion, due to the technical nature of the work.

Senior management can then rely on the structures already in place to perform the necessary supervision to ensure that the work is on track, the persons responsible for providing the necessary support are engaged, the person accountable is delivering as per the Project Plan, and that the work done is in line with the Strategic Plan.

Conclusion

The challenges of managing a large, complex organization cannot be underestimated. Organizational structures, governance structures, task management and reporting channels ultimately aim towards one objective only: to support informed decision-making so that the organization's vision and goals can be met.

The need to manage different perspectives does not imply that complex project management bureaucracies are necessary. It simply means that responsibilities and accountabilities need to be well established and formalized, and that senior management is able to establish an environment conducive to collaboration between internal staff and external stakeholders, and to ensure the successful implementation of ICT projects through informed decision-making.