

A Strategic Trade Control Systems Model

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Abstract

This article presents a Strategic Trade Control (STC) Systems Model developed by the United States Department of Energy's Office of Nonproliferation and Arms Control. The STC Systems Model describes the general functions that all STC systems must accomplish and the specific system components, unique to each national strategic trade control system, needed to accomplish them. By separating the functions STC systems need to accomplish from the specific choices countries make about how to accomplish those functions, this STC Systems Model provides a universal template any country can use to inform, assess, and improve their STC system.

Keywords

Strategic trade controls, export controls, systems modeling, capacity-building, implementation, licensing, enforcement, outreach

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Introduction

The United States Department of Energy Office of Nonproliferation and Arms Control, through its International Nonproliferation Export Control Program (INECP), has worked for more than thirty years with partners in dozens of countries worldwide to help them develop and strengthen their strategic trade control (STC) systems. This broad experience has revealed that while no two systems organize or implement STCs the same way, and there is no ideal “right way” to tackle STCs, all these STC systems share common elements. While countries find their own ways to implement STC, they all fundamentally implement a common set of functions, and all system functions depend on a common set of system components to enable them to work.

INECP created a STC Systems Model to describe these common elements. The genesis of the approach was based on a methodology developed by the Homeland Security Exercise and Evaluation Program (HSEEP) to guide exercise design, development, conduct, and evaluation. Development of the model also leveraged insights gained from INECP’s STC training program, which uses a Systematic Approach to Training (SAT) for identifying needed knowledge, skills, and attitudes to perform many of the tasks associated with a successful STC system.

Despite the wide range of STC system types around the world, all countries can use this model to help guide efforts to strengthen their own STC systems. This article first describes the functions common to all STC systems (Section 1.0) and then discusses the system components that enable them (Section 2.0). Finally, in Section 3.0, the article discusses application of the model.

1.0. STC Functions: What STC Systems Do

At the most basic level, a country’s STC system must regulate trade, ensuring that trade adheres to its laws and regulations, helping the country fulfill its international commitments and achieve its policy goals. While all STC systems are unique, they must nevertheless perform a common set of functions to accomplish these goals. First, they establish the rules governing strategic trade. Second, they promulgate those rules to promote compliance. Third, they regulate licit trade in accordance with those rules. Finally, they enforce those rules to prevent illicit trade.

Table 1. STC functions

STC Functions			
Establish Requirements	Promote Compliance	Authorize Trade	Prevent Illicit Trade

1.1 Establish Requirements

STC Systems are built upon a legislative and regulatory foundation defining rules, creating authorities, and allocating responsibilities. Four critical steps to establishing the requirements for a STC system are securing political will and commitment, creating the legislative and regulatory foundation, designating organizations and their authorities, and creating coordination mechanisms among them.

1.1.1 Securing Political Will and Commitment

Political will and commitment refer to a state's international commitment to nonproliferation of nuclear weapons, other Weapons of Mass Destruction (WMD), missiles, and conventional weapons, as well as preventing the spread of sensitive or controlled materials and equipment. It takes the form of memberships and adherence to a range of nonproliferation conventions, treaties, regimes, and groups.²

Political will and commitment for STC stem from three principal sources: implementing relevant United Nations Security Council resolutions (UNSCRs), signing and ratifying legally binding nonproliferation-related treaties, and declaring adherence to the norms established by the nonproliferation regime. Treaties include the Treaty on the Nonproliferation of Nuclear Weapons (NPT), the Chemical Weapons Convention (CWC), the Biological Weapons Convention (BWC), and the Arms Trade Treaty (ATT).³ In the STC context, the norms of the nonproliferation regime refer to the guidelines developed and maintained by the Nuclear Suppliers Group (NSG), Missile Technology Control Regime (MTCR), Wassenaar Arrangement (WA), Australia Group (AG), Proliferation Security Initiative (PSI), and World Customs Organization (WCO).⁴

1.1.2 Creating the Legislative and Regulatory Foundation

When creating the legislative and regulatory foundation for STC, lawmakers and regulators are guided by the requirements of UNSCR 1540 and other UNSCRs imposing trade sanctions, treaties signed by their country, and the guidelines of the nonproliferation regime (as discussed in Section 2.1.1). This entails ensuring laws and implementing regulations are in place to require authorization to export certain controlled items (including materials, equipment, software, and

2 David Albright, Sarah Burkhard, Spencer Faragasso, and Linda Keenan, "Peddling Peril Index," Institute for Science and International Security (ISIS), April 2022, <<https://isis-online.org/ppi>>.

3 Treaty on the Non-Proliferation of Nuclear Weapons, March 5, 1970; Organisation for the Prohibition of Chemical Weapons (OPCW), Chemical Weapons Convention, 1993; Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, United Nations General Assembly Resolution 2826 (XXVI), United Nations, 1972; Arms Trade Treaty, "Certified True Copy (XXVI-8)," May 2013.

4 Nuclear Suppliers Group, <<https://www.nuclearsuppliersgroup.org/index.php/en/>>; Missile Technology Control Regime, <www.mtcr.info>; Wassenaar Arrangement, <<https://www.wassenaar.org/>>; Australia Group, <<https://t.ly/M3cq4>>; Proliferation Security Initiative, <<https://www.psi-online.info/>>; World Customs Organization, <<https://www.wcoomd.org/>>.

technology). Laws and regulations must also apply to re-export, brokering, transshipment, and transit of such items. STC laws and regulations should also enable so-called catch-all controls, requiring authorization for exports of non-listed items under certain circumstances involving proscribed end-uses or end-users, and they should apply throughout the national territory, without carve outs exempting free trade zones from STC requirements.

Control lists represent another fundamental building block of the STC legislative and regulatory foundation. Regulators must create and maintain one or more lists specifying items subject to STC requirements. Ideally, these national control lists should be consistent with those of the CWC, WA, MTCR, NSG, and AG, though they may also include unilaterally controlled items. Many countries around the world achieve this by modeling their national control list(s) on that of the European Union's Dual-Use Export Control Regulation 2021/821, which consolidates the aforementioned lists.⁵ Lawmakers must also create a process for maintaining and updating their control lists in a timely manner.

With laws, regulations, and control lists in place, countries must specify their authorization requirements and types of licenses or permits available, as well as any exceptions to or exemptions from those requirements. They must also designate which organizations (see Section 3.1) have various STC responsibilities and establish their precise authorities and mandates. Finally, countries must establish an authorization system to be used for STC administration and coordination mechanisms among the responsible organizations.

1.2 Promote Compliance

Once a STC system requirements are established, countries must promulgate them and enable exporters and importers to comply with them. This requires creation of an outreach program and conducting outreach activities using that program. Ideally, countries will go beyond a one-way promulgation of requirements, fostering instead a true public-private partnership in which industry has input regarding regulatory developments.

1.2.1 Creating an Outreach Program

Creating an outreach program often starts with developing a strategic plan that identifies stakeholders, articulates mission objectives, identifies outreach targets, allocates resources, provides incentives, and defines the outreach mechanisms to employ. Once defined, outreach materials, such as websites, training programs, how-to guides, and self-help tools must be developed and maintained.

1.2.2 Conducting Outreach

One of the most critical steps governments can take to promote compliance is publishing

5 Council Regulation (EC) No. 821/2021 of 20 May 2021 Setting up a Community Regime for the Control of Exports, Transfer, Brokering and Transit of Dual-Use Items (Recast), Official Journal of the European Union, <<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2021:206:FULL&from=EN>>.

the national control lists. Generally, countries also create and maintain one or more websites explaining requirements, providing guidance, explaining the licensing system's processes and procedures, and offering assistance as needed. Some countries go further, organizing seminars or conferences for exporters, or even conducting tailored outreach visits with individual enterprises. Some countries even help enterprises establish or improve their internal compliance programs.

1.2.3 Fostering Public-Private Partnership

Recognizing that informed compliance greatly reduces regulatory burden, many countries go beyond promulgation of requirements to foster constructive government-industry relations, soliciting industry's input regarding regulatory development. This can include creation of advisory councils and use of public comment mechanisms on proposed legislation and regulation. Similarly, regulators can attend industry trade shows to maintain awareness of technology developments and establish relationships with industry representatives.

1.3 Authorize Trade

Traders complying with STC requirements will apply for authorization to conduct regulated trade. The government must process these applications, assess risk, and issue decisions authorizing or denying the applications.

1.3.1 Processing Authorization Applications

Key elements of a standard licensing or permitting process include registration, administrative review for correctness and completeness, commodity classification, verification of authorization requirement, assessment of applicable exceptions and exemptions, and routing to appropriate authorizing organizations.

Registration (either as a business or as an exporter) ensures an enterprise is known and recognized by the government as a legitimate entity. While not required in all countries, registration enables the authorizing organizations to pre-screen each company's credentials and products. It also creates opportunities to conduct outreach to enterprises to enable them to submit appropriate and complete applications.

The application process should receive, log, and track license or permit applications, validate the company's status as an exporter, identify incomplete applications, and support communication with applicants to remedy incomplete applications. Determining if the requested authorization is required entails checking the commodity's classification with respect to the national export control lists, assessing catch-all (end-use/end-user) requirements, and checking whether any available exceptions or exemptions apply. Finally, depending on the outcome of the previous steps, the license application should either be rejected or accepted, and accepted applications should be routed to the appropriate licensing authorities.

1.3.2 Assessing Risk

Licensing authorities approve or deny license applications based on risk assessment. This encompasses analysis of the item(s) to be exported, the credibility of the stated end use, and the reliability of the stated end user. If multiple government agencies conduct their own risk assessments, a process is needed to integrate those assessments, resolve disputes, and identify risk mitigation measures.

1.3.3 Issuing and Communicating Decisions

Based on the risk assessment discussed above, a decision to approve or deny the application must be made and communicated to the applicant. In some cases, these decisions will also be communicated to other government agencies (such as those responsible for enforcement) or international partners (for example, many countries participating in the nonproliferation regime have committed to sharing information with each other regarding license application denials).

1.3.4 Maintaining Oversight

Regulating licit trade also requires certain oversight functions. Commonly, authorized activities must be reported when (or if) they actually take place, and the licensing authorities must review those reports and respond to any activities of concern. Record keeping is another important function needed for oversight purposes to provide transparency, track timeliness of reviews, and support trend analysis. Finally, the system should enable and support administration of appeals.

1.4 Prevent Illicit Trade

The fourth functional area for STC systems is preventing illicit trade, for example, strategic trade contrary to the requirements established, through law enforcement. This requires the ability to detect and interdict illicit trade, conduct investigations, and apply penalties.

1.4.1 Detecting Non-Compliance

Noncompliance with STC requirements is generally detected in real time through targeting of shipments, after the fact by conducting audits, and before the fact by generating investigative leads.

Targeting potentially illicit outbound shipments is generally accomplished by analyzing and screening export declarations in a risk management system, comparing them to risk profiles, and examining high-risk shipments using documentary or physical checks.

Audits of exporting companies entails a structured examination of their internal commercial data, sales contracts, and records to measure compliance and detect non-compliance, which can include failure to declare, false declarations, export without a required export license, or misuse

of an export license. Audits also play a role in implementing a risk management strategy with compliance levels serving as an input to targeting rules. Audits are particularly important with respect to detecting illicit transfers of intangible technology.

Generating investigative leads involves identifying and prioritizing enterprises involved in producing or trading strategic goods and developing relationships with those companies that lead to voluntary disclosure of suspicious enquiries they may receive or other information that may indicate illicit procurement attempts.

1.4.2 Interdicting Illicit Trade

Interdicting illicit shipments requires the ability to detain and inspect shipments, identify the products being exported, and obtain binding licensing determinations establishing whether the shipment required authorization or if it did not conform to the terms of its license. In some cases, interdicting illicit trade requires the ability to recall shipments improperly exported, which in turn can require establishing protocols with carriers or with authorities in other countries.

1.4.3 Conducting Investigations

Investigations of STC violations can be administrative or criminal. Administrative investigations require the ability to obtain an official licensing determination from the appropriate regulatory authority and the ability to issue administrative subpoenas to compel testimony and/or the production of documentary evidence. They also require the use of standard investigatory techniques such as open source research, interviews, and surveillance. Criminal investigations additionally require the ability to obtain and execute search and arrest warrants. Finally, STC investigations often require the ability to conduct international joint investigations.

1.4.4 Imposing Penalties

STC cases can result in administrative penalties, such as fines, consent agreements, designation, de-registration, asset forfeiture, and loss of export privileges. Criminal penalties can include incarceration.

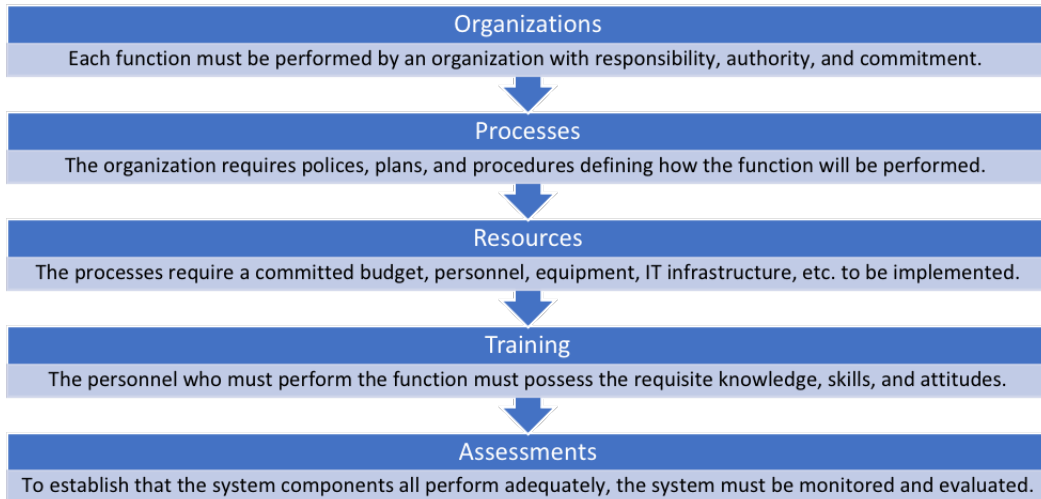
2.0. STC System Components: How STC Systems Work

The STC functions discussed thus far are universal, implemented in one way or another by all STC systems. How a government implements the various functions within its structure and organizations is generally unique for each country and represents its existing governmental structures used to accomplish the STC functions.

Each function must be performed by an organization with specific responsibilities and authorities. Each organization will follow processes to perform the functions, and those processes require resources such as a committed budget, personnel, equipment, and IT infrastructure. The personnel who perform the functions require training bestowing the requisite knowledge,

skills, abilities, and attitudes. Finally, since all systems require feedback to ensure they perform adequately, an assessment strategy is needed to monitor and evaluate the performance of each function. These STC system components -- organizations, processes, resources, training, and assessment -- constitute a government's implementation of its STC system.

Table 2. STC system components



2.1 Organizations

Many functions of a STC system require involvement of multiple government organizations, each with specific responsibilities, authorities, and mandates. Multiple legislative offices and ministries will be involved in implementing the STC system. Each will designate and empower agencies with specific departments, divisions, etc., to implement various STC functions. While some countries create a new agency or department devoted to STC implementation, most STC systems make use of existing organizational structures that perform similar functions.

Table 3. Example ministries and agencies for STC implementation

Ministry	Agency/Department
Prime Minister	National Police Agency Investigative Authority National Security Intelligence Services
Ministry of Defense	Coast Guard Defense Investigative Authority
Ministry of Internal Affairs	Statistics Bureau
Ministry of Trade	Export Licensing Agency Trade Investigative/Audit Authority
Ministry of Finance	Customs Customs Investigative Authority
Ministry of Justice	Justice Investigative Authority Prosecutors

Ministry of Foreign Affairs	Disarmament and Nonproliferation Department
Ministry of Education	Higher Education Bureau

The STC Systems Model can be used as a checklist to ensure each that a designated organization within the government is responsible for each STC function. Careful planning and coordination to identify precisely where in each organization's structure the function will be performed will help minimize conflicts and duplications of authority.

2.2 Processes

Organizations determine how business will be conducted using regulations, orders, policy statements, plans, guidance documents, or procedures. In most governments, once a law is codified the impacted ministries and agencies usually propose and enact implementing regulations. Regulatory requirements help put laws into practice. Ministries and their agencies often have other mechanisms for providing more detailed guidance on how to conduct business in accordance with the laws and regulations. These often take the form of orders, guidance documents, and eventually detailed procedures that instruct staff on how to conduct their work.

2.3 Resources

Performing work requires resources, which generally can be grouped into three broad categories: financial, human, and physical.

- *Financial resources:* Financial resources are arguably most important as a committed budget enables acquiring the other needed resources. Allocating government budget to STC system implementation enables each of the organizations involved to accomplish the functions assigned to them in accordance with the developed regulations and processes. Underfunding individual functions will weaken the STC system.
- *Human resources:* The success of any organization is dependent on the strength and capabilities of its staff. Identifying, recruiting, hiring, and retaining skilled and independent professionals is essential to effective STC system development and implementation. Government staffing organizations need to place talent at all levels within the organizations implementing the STC system.
- *Physical resources:* Personnel performing STC functions require a standard set of business system resources to conduct their work. These include physical spaces, proper office equipment, communication capabilities, and information technology infrastructure. The latter is particularly important as many of the functions of an STC system have time constraints to minimize negative impacts to a nation's trade. Effective and timely implementation of these functions is enabled through dedicated tools built upon and within the IT infrastructure. Ensuring that the IT infrastructure supports collaboration across organizations while also protecting sensitive information warrants special attention.

2.4 Training

Having responsible organizations, detailed processes, and adequate resources will not ensure an effective STC system if the implementing staff do not have the required knowledge, skills, and attitudes to perform their tasks. Like the STC system itself, the training subsystem must have budget, staff, and physical resources to be able to ensure staff receive the training they need to perform their work. These resources include having skilled curriculum developers, trained trainers, and systems to test, certify, and track staff abilities. Most countries do not have a single STC system training program; rather each implementing organization generally has its own training programs into which it incorporates STC-specific training.

2.5 Assessments

Ensuring that any system is operating correctly requires routine and ongoing assessment. Assessments generally involve monitoring and evaluation (M&E) as well as incorporation of feedback from all concerned stakeholders (including regulated entities). Monitoring is the regular collection of information about the work involved. Evaluation is the collection of judgements made concerning a service or task, specifically how efficiently it is working and what areas could be improved.

There are wide variety of tools available for conducting system monitoring, evaluation, and improvement planning. It is essential (whether developing metrics, performing audits, or conducting tabletop exercises) that the relevant functions of the STC system are being assessed. Knowing what success for a function looks like and monitoring and evaluating for that performance measure is core to the assessment. Improvement planning and incorporating of feedback provide recommended changes to the other STC components (organization, processes, resources, and training) for the system to better perform the STC function(s) being assessed.

3.0 STC Systems Model: Combining the What and How

While most descriptions of STC systems are organization focused, in that they describe what a specific or “typical” organization accomplishes within the context of an overall STC system, implementation of STC systems varies widely given differences in government structure, economic focus, and political priority. Existing nominal models do not fit any specific STC system, which make them difficult to apply to specific national circumstances.

By separating the functions STC systems need to accomplish from the specific choices countries make about how to accomplish those functions, this STC Systems Model provides a universal template any country can use to inform, assess, and improve their STC system. This approach enables more consistent assessments of system performance, allows comparisons across systems, and enables a more universal approach to changes and improvements.

Engineering disciplines commonly use failure analysis to determine the root cause of failure with the aim of taking corrective action. Core to failure analysis is understanding what a system is supposed to do and then identifying what system component is not correctly working.

Corrective actions are then planned around changing the system such that it performs its intended functions. Similarly, the STC Systems Model provides a framework to enable partners to systematically examine and assess at the needed level of fidelity, which STC functions need implementation or improvement. For each such identified function, the analysis then looks at the STC components to see what needs to be changed to implement/improve the function. The STC components provide that framework for improvement planning as the relevant changes can be characterized as five basic questions:

1. Is there a responsible organization;
2. Do they have adequate processes and authorities in place;
3. Are the needed resources assigned;
4. Are personell trained to do the job; and
5. Is the function monitored and held accountable to ensure it is working as intended.

All improvements to the system will fall into one of these bins and it is the insights gained from answering these questions that countries can use to develop and implement their improvement plans.

The STC Systems Model provides a framework to achieving shared understanding and agreement about designing, developing, and strengthening STC systems. It also has practical applications for exercises and training designed to test and improve STC implementation. The Model's STC Functions provide relevant exercise scenarios and guide planned discussions while assessment of the system components identifies areas for improvement. With respect to training, the Model's STC Functions form the basis for identifying knowledge, skills, and attitudes needed for a systematic approach to training.

Countries find their own way, within their governmental structures, to effectively implement an STC system. The STC Systems Model organizes what their system is supposed to do while providing a logical approach to identifying and implementing improvements in that system. Despite the wide range of STC system types around the world, all countries can use this model to help guide efforts to strengthen their own STC systems.

