



# Developing a Trade Information Portal



**THE WORLD BANK**

**International Trade Department**  
Poverty Reduction and Economic Management Network



# Developing a Trade Information Portal

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A number of countries have introduced or are considering the introduction of a Trade Information Portal as a means of facilitating trade and increasing transparency. For WTO members or countries in the process of acceding to the WTO, a Trade Information Portal will also assist them in complying with new commitments currently being negotiated as part of the Doha Development Round. The negotiations aim to strengthen the provisions of Article X of GATT which currently requires that all regulatory trade related information “*shall be published promptly in such a manner as to enable governments and traders to become acquainted with them*”.<sup>1</sup>

In many developed nations, trade related information is readily available across a number of websites maintained by each government agency responsible for a particular aspect of trade regulation. In some of these countries, the government even provides a website that consolidates all of this information in one user friendly website. However, in many developing nations, such agency specific websites may

not exist and even when they do they are often incomplete, out of date or the content may not cover the entire spectrum of information that a trader may wish to obtain to ensure compliance with import, export or transit requirements. It is therefore desirable to create a single platform where all the information relating to trade from all the various agencies is aggregated under one roof and is readily available for searching and viewing. This is what we call, in this Guide, *a Trade Information Portal*.

Often a Trade Information Portal is seen as a first step towards the introduction of an electronic National Single Window, which is also increasingly being seen as a way of affording greater facilitation to trade.

This Guide discusses the issues and challenges that developing nations are likely to face when implementing a Trade Information Portal and provides a checklist of practical guidelines for the steps that might be required in order to achieve effective implementation.





## What is a Trade Information Portal?

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A ‘portal’, in common Internet parlance, is a website that provides a single point of access for certain classes of information and that is normally seen as the first place one would go in order to find the specific information one might require.

On the face of it, the name “Trade Information Portal”, therefore, sounds fairly self-explanatory, i.e. the primary site where one can obtain all the information on regulatory requirements needed to undertake international trade. However, the term can be equally applied to websites of a quite different nature. For example, there are a number of websites sponsored by those government or quasi-government organizations that are aimed at export promotion. Examples of this kind of website are the Singapore government’s *IESingapore*<sup>2</sup> or the New Zealand Government’s *Trade and Enterprise* website.<sup>3</sup> There are also websites that provide traders who wish to do business in a specific country with information about how to find business partners (e.g. distributors, suppliers, business opportunities, etc.) in that country. These are commonly referred to as B2B<sup>a</sup> websites or “marketplaces”. Examples of this kind of website are the *Norwegian Trade Portal*,<sup>4</sup> the *Thai Department of International Trade Promotion*’s website,<sup>5</sup> and the *Sri Lanka Export Development* website,<sup>6</sup> to name a few. Indeed there may be more than one such website in a single country, overlapping in scope, such as the *Trade Portal of India*<sup>7</sup> and *TradeIndia*.<sup>8</sup>

These websites may provide some regulatory information but are primarily aimed at business and export promotion. In this Guide we are concerned with a Trade Information Portal as a resource provided by governments to traders in order to obtain, from one single source, all the information that importers or exporters in a given country may require in order to comply with their regulatory obligations

in relation to all the government agencies that control export, import or transit business.

The starting position is typically that this information is in the domain of a number of different government agencies and that, often, the scope of what pertains to one agency overlaps with or impacts another. This results in a trader having to seek information from more than one place which, in many countries, involves having to go to the agencies in person. Often, in the absence of a single authoritative reference point, the interpretation of certain requirements by one agency may conflict with the way requirements are interpreted by another agency causing unnecessary effort and cost to be expended in attempting to meet various government requirements.

A single source of all regulatory information, provided it is comprehensive, accurate and up-to-date, can result in tangible benefits in terms of trade facilitation. For a start there would be substantial cost savings if proper guidance can be obtained without the need to seek advice in person from several locations. Furthermore, conflicts would be avoided by having a single authoritative reference point, as would potential penalties for non-compliance.

Cumulatively, these savings in time and cost should cut the overall cost of doing business and reduce the time to import or export goods thus contributing to a country increasing its overall standing in terms of transparency and ease of doing business.

However, in spite of its obvious benefits, in many developing countries there are numerous challenges involved in developing and implementing such a system.

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<sup>a</sup> B2B: Business to Business



### 3.1 Setting the Scope and Vision

A trader wishing to import or export commodities often needs to comply with various regulatory requirements long before the goods arrive and need to be declared to Customs at the border.

Firstly, an importer or exporter may need to register as a business with the relevant authority (e.g. the Ministry of Trade).

Secondly, in the case of imports, the goods that a trader wishes to import may need to comply with certain technical standards which may be specified in regulations. In this case the trader may need to present an import plan to the relevant authority and/or obtain certificates or permits in advance of importation. This is often the case for goods such as telecommunication equipment, vehicles, medical equipment, pharmaceuticals, food and animal or plant products.

Even if standards are not made mandatory by regulations, traders may wish to ensure that the goods they import or export comply with prevailing international standards or with any recommended national standards for those products and, in order to ascertain that information, they may need to seek guidance from a relevant government authority.

Imports of food, agricultural products or live animals would typically be subject to sanitary or phytosanitary measures requiring a permit to be obtained from those agencies responsible for enforcing these requirements or restrictions.

Furthermore, there may be a requirement to obtain an import license for certain products if these are subject to non-automatic licensing rules, typically for products that are subject to quotas, or to automatic licensing rules for the purposes of collecting trade statistics.<sup>b</sup>

In the case of exports, a trader may need to obtain an export permit or license if there are restrictions in place for certain products such as those to protect natural resources.

Various ministries or agencies may be involved in this process, each responsible for applying provisions that may be enshrined in basic laws as well as in decrees, regulations, instructions or other legal instruments.

Finally, a trader needs to comply with the provisions dictated by the Customs Law and other legislation in relation to the proper procedures for clearing the goods for import, export or transit at the border. These provisions will vary according to different regimes such as imports for domestic consumption, warehousing, import for re-export, inward processing, etc.

In order for a website to give comprehensive guidance about all of the above, it would need to aggregate information pertaining to several agencies. This would typically comprise a complete catalogue of all the laws, regulations, instructions, measures or other legal instruments related to trade, as well as instructions on procedures and access to the country's tariff requirements.

Therefore, when embarking on the development of a Trade Information Portal, it is important at the outset to have, a clear vision of what the scope of the portal should be in terms of what information will be published. This involves identifying which agencies play a role and what information they oversee. In this Guide we refer to these agencies, collectively, as the Agencies.

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<sup>b</sup> This is often due to limitations in the statistical capabilities of the Customs agency's declaration processing system that force other agencies to collect statistics relevant to their own areas of responsibility or mandate.

### 3.2 Setting up the Governance Structure

In this context, it is clear that a mechanism must be found for ensuring that all the Agencies collaborate in supplying the information required, both at the initial stages of setting up the portal and as an on-going responsibility, to ensure that the portal is comprehensive and kept up-to-date with changes or new information as soon as it is available.

Therefore, it is advisable that a governance model for the initial implementation and future governance of the portal should be put in place at the outset. This could be a Steering Committee or similar collaborative body in which each of the agencies involved is represented as a stakeholder. The particular circumstances of each country will determine what the most appropriate arrangements should be in terms of chairing this body but, typically, it would be a Ministry that has an overarching responsibility in terms of promoting trade facilitation or a pivotal role in terms of reform and modernization of the trade sector.

The first task for the Steering Committee should be to nominate one agency as the lead. This agency would have the responsibility of coordinating efforts and managing the development and implementation project. It would, however, act upon policy decisions made collectively by the Steering Committee. In this Guide, we refer to this agency as the *Lead Agency*.

### 3.3 Legal Basis

During the initial setting up phase information will need to be gathered from the various Agencies. It is therefore advisable that the Steering Committee should agree on the fundamental principles of supplying information to the Lead Agency. Experience has shown that information websites quickly become out of date after the initial implementation. Indeed some websites are launched with many pages still ‘under construction’. Therefore, for a Trade Information Portal to be always information-rich and up-to-date, it is necessary to implement a proactive mechanism for ensuring that fresh information flows freely from the Agencies to the Lead Agency.

This may sound like a simple matter of agreeing to a system of collaboration between the agencies. However, in many countries, this free flow of information may be constrained by bureaucratic or cultural impediments. Indeed, there may be laws that prevent exchange of information between agencies. These laws may relate to operational information of a sensitive nature whilst the Trade Information Portal would only deal with information which should be available in the public domain. Nonetheless, some agencies may interpret the laws as preventing them from supplying *any* information to another agency. It would therefore be advisable to establish a legal basis for the Trade Information Portal which will allow an open exchange both during the initial setting-up period and during on-going operation.

The instrument that needs to be put in place will vary from country to country but the important thing is that it should be an enabling tool whilst, at the same time, putting certain obligations on the Agencies and the Lead Agency. This could take the form of a Memorandum of Understanding (MOU) between the Agencies and the Lead Agency or it may need to be a decree or instruction from an authority above the parties involved, e.g. the Prime Minister.

The key issues that would need to be covered by the MOU (or similar instrument) would be as follows.

- The Agencies and the Lead Agency should agree to nominate a responsible official or officials, as the point of contact with each other for all matters relating to the Trade Information Portal.
- The Agencies and the Lead Agency should agree to communicate promptly to each other any matters or issues of importance arising from policy or management decisions of relevance to the information published on the website and its consequential effect on the public.
- The Agencies should communicate to the Lead Agency any relevant information in advance of such information being made available to the public. The timing of such advance notice should be agreed between the parties and should be sufficient to enable the Lead Agency to publish the information on the website in a timely manner. Conversely, the Lead Agency should undertake to publish the information received from the Agencies on the website in the

time frame agreed between them and should agree to carry out any amendments or deletions resulting from a notification by the Agencies promptly on receipt of such notification.

- Wherever possible the Agencies should make every effort to supply the information to the Lead Agency in an electronic format or in machine readable format.
- The Agencies should notify the Lead Agency promptly of any inaccuracies or omissions in the information published on the Website and of information becoming inactive or no longer being required.
- The Lead Agency should maintain a log of any information received from the Agencies and of any notifications of changes.
- The Lead Agency should undertake to forward to the relevant Agencies in an agreed electronic format any enquiries received from the public via the website promptly on receipt of such enquiry.
- The Agencies should agree to respond promptly in an agreed electronic format to any enquiry from the public forwarded to them by the Lead Agency.
- The Lead Agency should be responsible for entering into contracts with third-party suppliers for the provision of hardware, software, net-

works or hosting services to enable the operation of the website.

- The Lead Agency should endeavour to ensure that the website is available for public viewing to the maximum possible extent and should undertake to ensure that any third-party service suppliers fully comply with their contractual obligations in relation to system performance and availability.
- The Lead Agency should distribute to the Agencies statistical reports of website usage on a regular basis.
- The MOU should make provisions for a conflict resolution mechanism in the case of a dispute between the Agencies and the Lead Agency which is appropriate to the circumstances of each country.

#### **Key Recommendations**

- Identify scope of information to be published
- Identify key stakeholder agencies
- Set up governance structure for development and implementation project and on-going operation
- Provide legal basis for development and operation of the portal (MOU or similar)



Once the governance structure for the Trade Information Portal and a legal basis for the supply and publishing of information are in place between the stakeholders, the first task for the Lead Agency should be to develop a *Strategic Plan* defining the options for the development and operation of the portal. The plan and the recommendations should be presented to the Steering Committee for discussion, selection and approval.

### 4.1 Appointing a Project Team

The Lead Agency should appoint a *Project Team* which may be assembled from internal resources or through the appointment of a competent contractor or from a combination of both. The composition of the team will be determined by the specific circumstances of each country. However, in general terms, as well as a Project Manager/Team Leader, it would be beneficial to include personnel with a broad understanding of trade procedures across the board, ICT specialists with knowledge and experience of modern web design technologies and someone with an understanding of the legal landscape.

The project team should elaborate the Strategic Plan focusing on the key choices to be made. These choices relate to the following key issues.

- Method for collating information from the Agencies and presenting it to the public
- Content and Design Features of the Website
- Operational Model
- Style
- On-going Sustainability
- Legal Aspects
- Financing Model
- Risks and Impediments

The issues involved in these choices are discussed in more detail in the sections below.

### 4.2 Method for collating information from Agencies and presenting it to the public

The Project Team should determine how information is currently published by the various Agencies. The likelihood is that, even in less developed countries, most agencies will have a website of their own or as part of their ministry's website. Experience suggests that in most countries Customs will already have a website.

However, these websites may be in different stages of completeness in terms of what information is published and how up-to-date and consistent they are. Inevitably, all the websites will have a different 'look and feel' and a different structure of how the information is organized.

The Project Team needs to consider whether the approach to building a Trade Information Portal as a focal point for trade related information can be achieved by building a website with a list of topics that are cross-linked to each agency's own website in order to provide the content.

Consultation with the Agencies is required in this respect but the Project Team should be mindful that these discussions may be biased by each stakeholder's desire to uphold its role, identity and independence.

Even if the information on all agencies' websites were complete, accurate and up-to-date, there are disadvantages to this model. A trader enquiring on the website would not be able to see inter-related information from different agencies without jumping to different websites and having to navigate via various menu options to get to the relevant data. For example, having found out the tariff for certain goods, the trader would then need to go to another website to see what the SPS (Sanitary-Phytosani-

tary) requirements are for that commodity and yet another website to see whether an import license is required and what the procedures are for obtaining one. It is also possible that none, or only some, of these websites would make reference to the laws or regulations relating to those requirements. Indeed, many Agencies will use their own system for identifying the goods and may not employ the internationally recognized HS<sup>c</sup> nomenclature.

The alternative model is to aggregate all the information in a single website so that it can be consolidated, cross-referenced and presented in a logical and consistent format. This would probably result in a degree of duplication, at least initially. The operational and governance model would have to allow for any new information generated within an agency and relevant to trade to be uploaded to the Trade Information Portal. In time, however, a policy may evolve whereby the Trade Information Portal becomes the only source of such information and other websites would point to it where appropriate.

A hybrid model may be feasible in which certain key information is already extensively and accurately available on a single website. For example, at the core of any trade related information are all the laws, decrees, regulations, instructions and any other legal texts that may be administered by the various agencies. In some countries, all the laws are published on a single website (e.g. in New Zealand, where all the legislation is published on a website maintained by the Parliamentary Council Office<sup>9</sup>). In this case, it would be feasible to use a hyperlink whenever a law is referenced in the Trade Information Portal. If the laws are structured and indexed (as against being simple images in PDF<sup>d</sup> format) it would be possible to point directly to the relevant article or section.

Another case might be one in which the commodity classification and tariff are already available on-line on a website where users can search for a commodity by commodity code or by keywords. This is most likely to be on a Customs website, although not always. Research on the websites of various countries has shown that the search capabilities can be limited and that any special measures (e.g. restrictions, prohibitions) associated with a commodity may not necessarily be shown.

For the purpose of this Guide, which is largely aimed at less developed and developing countries, we will assume that the limitations described above exist and, therefore, the issues and recommendations discussed will relate to what is required to implement a model where all the information related to trade is gathered from the various agencies and consolidated into one website.

### Key Recommendations

An early decision should be made and approved by the Steering Committee about the nature of the website (i.e. 'cross-link to other websites' or 'consolidated') as this will determine the approach to technology, operations and future management model.

## 4.3 Content and Design Features

The Project Team, in the course of conducting the initial consultations with the Agencies, should attempt to quantify the volume of information that will need to be collected or, in some cases, generated. This is in order to arrive at a best estimate of the man-effort required which will, in turn, determine the resource requirements and the timetable for development and implementation.

Furthermore, an analysis of the existing sources of data and how they inter-relate should lead to a brainstorming of what functionality and features the website should provide. In doing this, the Project Team should consult extensively with the Agencies as well as trade practitioners (importers, exporters,

<sup>c</sup> The Harmonized Commodity Description and Coding System (HS) is an internationally standardized system of names and numbers for classifying commodities. The HS System was developed and is maintained by the World Customs Organization (WCO) and is used, with regional or national variations, by Customs authorities in most countries

<sup>d</sup> PDF: Portable Document Format. This is a format for storing documents so that they can be viewed as an image of the original. This is often as a result of a scan. It is possible, by using OCR (Optical Character Recognition), for these documents to be scanned with searchable text. However, often, text stored in PDF copies of documents in websites, such as laws, cannot be searched as OCR was not used or due to the limitations of recognising certain national alphabets.



brokers, transport operators) in order to understand the public's needs and their typical behaviours when seeking information pertaining to their business.

As a result of these activities the Project Team should elaborate a proposal for what the contents of the website should be and a rough estimate of the amount of source data that will need to be collected. The following are likely to be the main types of information.

- Laws, decrees, regulations, instructions and any other legal instruments relating to trade
- Commodity classification (probably in the HS format) and associated tariff(s)
- Special measures applicable to specific commodities or products, e.g. prohibitions or restrictions for SPS reasons
- Technical standards required of specific categories of products
- FTA's (Free Trade Agreements) determining a preferential tariff or special requirements when trading with the FTA's parties
- Procedures and general instructions for discharging regulatory obligations
- Forms used to apply for permits, licenses and Customs clearance
- Lists of codes required in various documents, e.g. country codes, units of measurement, currency codes, etc.
- Publications (e.g. leaflets, newsletters) distributed to the public
- News or announcements in the national or local press or by other means
- Useful information such as addresses and contact details of various agencies' offices or border stations

The Project Team, in consultation with the Agencies and the trade practitioners, should elaborate a model of how the information should be presented on the website and how to make it easily accessible through search functions in order to satisfy most query requirements.

The Strategic Plan should therefore comprise an outline design and content structure for the website.

The data analysis and database design will be discussed in Section 5.3 below.

## 4.4 Operational Model

The key choices for the operational model concern:

- Domain registration
- Hosting of the website
- Approach to technology
- On-going sustainability
- Management of the website

### 4.4.1 Domain Registration

The domain name for the Trade Information Portal is a key choice as it will be the unique identifier of the portal for the world at large and one of the key elements of the website's "branding".

The only limitation in choosing a domain name is whether that domain is already registered. Otherwise, normal common sense applies. A domain name should be relatively short, uncomplicated, easy to remember and descriptive of the nature and purpose of the website. It should avoid special characters (e.g. hyphens, underscores, etc.) and contain words which are likely to be found when someone who does not know the exact web address tries to find it through a search engine such as Google, Yahoo, etc.

A domain name is made up of a suffix (e.g. .com, .org) and a unique identifier, i.e. the chosen name.<sup>e</sup> Together, they constitute the URL<sup>f</sup> for the website, that is, the website's address that uniquely identifies its location on the web.

For government websites it is common to use top-level domains such as .gov.xx or .govt.xx where 'xx' is the country's international code, as in *customs.gov.au* or *customs.govt.nz*.

These domain names normally have to be registered with a special government authority whereas common domain names are registered with a number of international registrars and purchase, registration and on-going maintenance can easily be done on-line.

<sup>e</sup> Technically, the suffix is known as a top-level domain and the chosen name as a sub-domain

<sup>f</sup> URL: Uniform Resource Locator

Normally, domain names are purchased for a limited period (e.g. one year) and can be periodically renewed.

Perhaps the key concept that should be represented by the name is the national identity as there are various websites around the world with the words ‘trade’ or ‘portal’ and the suffix alone may not be enough to make the website stand out in Google searches.

Therefore it may be desirable to register a name such as *xxxtradeportal.gov.xx* or *xxxtrade.gov.xx* where “xxx” is the name of the country.

Having settled on a domain name it would be advisable to register the equivalent .com, .org. and .net domains in addition to the .gov.xx domain, as this prevents someone else from registering them (thus causing confusion) and will maximise the probability of users finding the website.

All the domain names can be linked to the server where the website is hosted. However, one of them must be the primary domain name which must be resolved through a DNS<sup>s</sup> server in order to find the IP address<sup>h</sup> of the host server. If the primary domain name cannot be resolved (e.g. if the server is down or the network is unavailable) access to the website will fail.

Normally, a hosting service also provides a DNS service and international domain names can be transferred to this service.

However, in our context, it is likely that a .gov.xx domain may only be hosted on a designated government DNS server. What should therefore be taken into consideration in deciding whether to register .gov.xx as the primary domain name is whether that server and the country’s network infrastructure are reliable enough and whether enough bandwidth exists to handle the expected volume of requests.

Registration of a domain name will normally also make a number of email addresses available. It will therefore be possible to utilize, for example, addresses such as *enquiries@xxxtrade.gov.xx* or *contact@xxxtrade.gov.xx*.

#### 4.4.2 Hosting

With regard to the hosting model the choice comes down essentially to the three options below. In selecting the preferred option the following considerations should be taken into account.

##### *In-house hosting*

The advantage of in-house hosting is that the Lead Agency is in complete control of the infrastructure, service and content of the website. However, the hardware for the hosting server and routers and the necessary telecommunications bandwidth to sustain the expected volume of traffic on the website will have to be purchased or leased. In addition, adequate and secure premises must be provided. The Lead Agency would have to ensure the operational availability of the website on a daily basis, put in place the necessary security precautions (e.g. firewalls) to protect it from unauthorized access and provide sufficient redundancy (e.g. standby servers) to provide for disaster recovery.

An agency should therefore consider whether its present level of ICT competency and staff availability is such that the above requirements can be satisfactorily accommodated or whether additional competent staff needs to be recruited.

The cost implications of this option should also be carefully considered not only in terms of the initial capital investment but also in terms of the on-going operational costs, maintenance and support costs and likelihood of expansion.

##### *Outsourced hosting*

This option involves contracting a competent supplier to set up a dedicated environment at their premises. The supplier would enter into a SLA (Service Level Agreement) with the Lead Agency and would need to provide the necessary hard-

<sup>s</sup> DNS: Domain Name System

<sup>h</sup> IP Address: Internet Protocol Address, the unique address for the website

ware, infrastructure and personnel in order to meet the service and performance targets agreed in the SLA (e.g. 24/7 service, 99% availability, protection from intrusion, etc). In the contract, provisions can be made for scaling up the service over time if required.

The advantage of this model is that the Lead Agency does not need to worry about acquiring or maintaining the infrastructure and having to employ competent technical personnel.

This arrangement, however, would probably be more costly than in-house hosting as the agency would have to pay a commercial rate for the service. A further perceived disadvantage may be that the data would reside outside the control of the agency. The issue of confidentiality of the data is discussed in Section 4.4.4 below.

### *Cloud Hosting*

Cloud Hosting is a form of outsourced hosting where the service is provided by a competent supplier that is already geared up in terms of infrastructure to provide the service using its existing facilities which are designed to offer different levels of service, as well as the necessary security, availability and expansion guarantees. Due to economies of scale, the cost of the service (normally a monthly operating fee) can be relatively low and it would be based on parameters such as storage space allocation and download speed.

There are a number of commercial providers that offer this kind of service.

This is probably the easiest option to implement as it requires no capital investment, no set-up, no technical personnel to maintain it and relatively low on-going costs. Like Option 2 above, however, it may raise confidentiality concerns.

### **4.4.3 Development, Training and Support Environment**

Regardless of the choice of hosting model it is advisable to set up a facility to host a copy of the web-

site platform for the purpose of carrying out further development, testing and training. It is a common and good practice for this facility to be kept separate from the live environment.

In the context of a Trade Information Portal this facility also serves the purpose of being the site where new information is uploaded so that it can be reviewed and, if necessary, approved by management before release in the public domain.

The development environment can be set up as an in-house facility or it can also be hosted in the cloud.

### **4.4.4 Confidentiality**

A further variation of options 2 and 3 above is whether the service provider is located in-country or off-shore. In either case, protection of the confidentiality of the data contained in the website would become a matter subject to guarantees extended by the service provider to the agency through their SLA. These would be covered by the data protection laws of the jurisdiction where the service resides.

If an off-shore service is chosen, the agency should consider whether the data protection laws of that country are adequate. Indeed they may well be more stringent than any data protection laws currently in force in the agency's country.

Concerns in this respect should be mitigated by the fact that the information contained in the Trade Information Portal is not confidential as it is freely available in the public domain. At most, the website would store email addresses of signed-up members but nothing of a commercially sensitive nature.

However, the website would display legal information and, conceivably, a hacker could gain access and maliciously alter it. Although unlikely, exposure to this danger does theoretically exist whether with a service provider or an in-house set-up. 100% security cannot be guaranteed by anyone, but hosting providers normally adopt the most stringent security measures available to the ICT industry to prevent such attacks. Please refer to Section 4.4.9

below with regard to how to mitigate the liabilities that may derive from such an occurrence.

#### 4.4.5 Approach to Technology

The Trade Information Portal will probably require a number of pages of generic information expressed in natural language for which plain HTML pages<sup>i</sup> would be perfectly adequate.

Also, most of the navigation options are likely to be standard facilities found on most web pages on the Internet, e.g. *Home, About Us, Help, Site Map, Contact Us, FAQ* (Frequently Asked Questions), etc.

In addition, it is likely that the website would provide for handling of news items, announcements, a calendar of forthcoming events of interest to the public and, of course, a trader should be able to search for specific keywords across the entire website.

A variety of ready-made website building tools exist that enable websites to be created and customised with all the above facilities available as off-the-shelf plug-ins.

However, it would be desirable for the website to handle more than just static pages of information or the standard facilities above. The website may contain structured information centred on the relationship between commodities, measures, procedures and laws.

In order to enable this functionality, this information needs to be stored as data in a database and the system must be able to create dynamic content and format it for screen viewing from the data in the database. It is therefore necessary to design a database that will be stored on the host server and to use a programming language to generate the content.

Considering the above, the options for how to approach the development of the website revolve around the three alternatives below.

##### *Option 1*

Use a web building toolkit that offers pre-set templates and add-ins (e.g. calendar, news, FAQ, etc).

There are various toolkits available on the Internet that allow websites to be built and customized very easily, without any specialised IT technical knowledge, with a large choice of template layouts, colours, fonts, etc. to personalize the “look and feel”. However, the ability to develop dynamic content is limited.

##### *Option 2*

Use an open source Content Management System (CMS). There are various products available with rich libraries of ready-made functions that allow relatively easy assembly and customization of a website application. Popular products are WordPress, Joomla, Drupal (which, between them, hold the majority of the market share<sup>10</sup>) and others.

##### *Option 3*

Use a combination of off-the-shelf software components and custom code to build a bespoke system. The major software platform vendors, such as Microsoft or Oracle, provide a variety of products that can be used to build web applications. However, these involve purchasing a license and paying an on-going license fee. An alternative is to consider the use of open source products that are available at no cost.

All of the above options are valid. The choice of technology approach should be determined by a combination of factors, including:

- The level of complexity in the website’s functionality, determined by the content and design features, requiring an appropriate set of development tools
- The degree of familiarity of the developers and of the personnel assigned to future maintenance with specific tools available in the market
- Budgetary constraints

Consider that the design of the database and the functionality built around it will require specialist Information Systems design and engineering skills.

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<sup>i</sup> HTML: Hyper-Text Mark-up Language, the most common language for presenting content on a web page

Therefore, a policy decision should be made on how to source skilled resources if these are not available in-house.

#### 4.4.6 On-going Sustainability

The sustainability of the website is a key issue to consider at the onset of the project so that the necessary provisions can be put in place.

In our context, sustainability can be measured by the following parameters.

- The website should be operational to the maximum possible extent (as close to 24/7 as possible). This involves continuous monitoring of the website's availability and prompt intervention if there is a problem.
- The content of the website should be kept up-to-date in a timely fashion with the latest changes in laws, regulations, procedures, etc. that may affect trade practitioners. Ideally any significant changes (especially ones that carry a legal value) should be published well in advance of becoming effective.
- News, bulletins, announcements, forthcoming events and other useful information from all the Agencies should be published regularly and in a timely manner.
- Enquiries submitted by the public via the website should be handled promptly by being routed to the relevant authorities and by monitoring their progress.
- Any bugs or issues reported by the public or by government users should be fixed promptly.

In order to meet the above criteria and ensure the on-going sustainability of the Trade Information Portal in terms of fulfilling its function of providing trade practitioners with prompt, accurate and comprehensive information, the following key factors should be considered:

- The choice of hosting model should ensure the maximum availability and scalability of the website.
- The infrastructure purchased to maintain the website (e.g. the development environment) should be covered by a maintenance contract.

- All the software installed (e.g. office automation, DBMS,<sup>j</sup> etc.) should be properly licensed. If a support license fee is required by the license agreement this should be kept up to date.
- Anti-virus software should be installed and the subscription should be kept up to date.
- Dedicated personnel with specialised skills should be engaged and assigned to the full-time management of the website. Experience in a number of countries has shown that, where responsibility for managing a website was assigned to existing staff on a part-time basis, the websites quickly became out of date or even non-operational.
- Proper ICT management policies and procedures should be implemented to maintain the equipment and software (i.e. backups, regular maintenance, source code version control, audit trail of changes).
- Knowledge of the software, technical architecture and content of the website should preferably reside within the Lead Agency or with a trusted provider appointed by the agency.
- An adequate budget should be made available to cover the costs of implementing the above provisions.

#### 4.4.7 Management of the Website

As recommended above, a dedicated *Trade Portal Management Team* should be appointed for the management of the website. The title and precise job descriptions of the personnel appointed may vary from country to country according to specific circumstances but, at a minimum, the team should comprise personnel tasked with the following responsibilities:

##### *Trade Portal Manager*

The role of the Trade Portal Manager is to be responsible for the service provided by the website, manage the activities of the Trade Portal Management Team, report to the Lead Agency's management about the performance of the website, be responsible for maintaining the liaison with the Agencies'

<sup>j</sup> DBMS: Database Management System

management and any other national authorities that may be involved, ensure that policy decisions about publishing trade related information are implemented, ensure the accurate and timely publication of new content and deal with suppliers of services (e.g. hosting, maintenance, etc.).

### *Webmaster*

The role of the Webmaster is to manage the functionality of the website on a daily basis, upload any new data supplied by the Agencies, make fixes and enhancements to the web software if necessary, monitor usage and performance, make recommendations with regard to any technical improvements and be responsible for day-to-day maintenance tasks.

### *Content Manager*

The role of the Content Manager is to liaise with the Agencies, collect the content that needs to be uploaded, proactively identify any new information that needs to be published, carry out data preparation and conversions (e.g. scanning, converting from Word or PDF to HTML, etc.), deal with any queries submitted to the website and track the Agencies' progress in responding to them.

The above personnel may be selected from in-house staff or specially recruited. In any event, it is likely that specific training will be necessary. The Lead Agency should therefore factor training courses into the project targeted to the specific training needs of the personnel selected. The content of the training courses will depend on the strategic choices discussed above with regard to the hosting model, the approach to technology and, as far as the procedures for collecting and publishing information, on the governance model established for inter-agency collaboration.

## 4.4.8 Style

At an early stage it would be advisable to make a decision on the future style (the "look and feel") of the website. This is a decision best made consensually as all the stakeholders being represented on the website should feel comfortable with it.

The style should encompass the layout of the pages, the colour schemes, the fonts, banners and logos, menu styles and placement, policies about the use of pictures or graphics and, generally, the navigational features.

The style of a website is a matter of taste and preference. However, some common sense recommendations include:

- The look of pages should be clean and clear
- Pages should stick to as few topics as possible – a cluttered page is difficult to read
- The number of menus or links on a page should not be excessive and should be logically organized
- Banners and logos should be smart and distinctive
- Use of distracting features such as flashing images should be minimized
- Navigational features should be logical and intuitive so as to minimize the number of steps needed to discover information

It might be advisable to build a few mock-ups to illustrate the look and feel of the website. There are various tools available that allow this to be done easily, quickly and at no cost using pre-existing templates. These mock-ups can be presented to the Steering Committee to assist with the decision.

## 4.4.9 Legal Aspects

For websites that present regulatory information to the public it is desirable for the sake of maximum transparency that such information be legally binding. However, this presents certain challenges that are not limited to developing countries.

In addition to the legal texts themselves, the website will present information (e.g. instructions, procedures, etc.) all of which has a basis in law. For all this information to be legally binding it will need to be synchronized with whatever system is in place in a given country in terms of when a law enters into force. In certain countries there may be an official gazette whilst others may rely on specific ad-hoc presidential or ministerial instructions for every piece of law or regulation.

In any event, a law or an amendment to an existing law will need to be passed to make the website a source of legally binding information. This process in itself is likely to take some time and it should therefore not be prejudicial to the implementation of the website.

To make the information on the website legally binding, the Lead Agency responsible for ensuring the accuracy of the website would have to be absolutely confident that no transcription errors or omissions have ‘crept in’ in the process of uploading the texts to the website. Also, there would be a considerable obligation on the Lead Agency to protect the website from malicious hacking. Whilst, as discussed above, maximum security measures should be taken as a matter of good practice, experience in other security conscious sectors, such as banking, has shown that no website or system mediated over the public Internet is 100% immune.

Furthermore, the prevailing trend in developing countries is for laws or fragments of laws to be published on various different websites rather than having an aggregated website of all the country’s laws. Therefore, either they are all made legally binding or the law should restrict this provision only to the Trade Information Portal. The first scenario may be vastly challenging for most countries whilst the second scenario could lead to confusion, possible misinformation and potentially conflict.

A survey of various websites around the world shows that even in developed countries, texts and laws published on government information websites are not legally binding, e.g., in the case of *Legislation New Zealand* (mentioned above) or the UK’s HMRC website *UKTradeInfo*.<sup>11</sup> In such cases, a disclaimer is normally published on the website limiting the government’s liability.

The Lead Agency should therefore consider publishing a disclaimer along the following lines:

*“In this website, information is published that pertains to or originates from various government agencies or other institutions. We constantly try to ensure that the content of this website is accurate and relevant. However, information is subject to change and we cannot guarantee that*

*the content is always accurate and up-to-date.*

*The information contained in this website, including any legal texts, does not carry legal value. In this respect, you should seek professional advice or seek advice from the relevant authority.*

*The government agencies represented in this website are not liable for any financial losses, damages or legal actions resulting from the use of information published on this website.*

*We are not responsible for the content of any linked websites and we cannot guarantee that the links will always work. These external websites are governed by different terms and conditions.”*

#### 4.4.10 Financing Model

The Steering Committee should consider what options are available for funding the initial development and implementation of the Trade Information Portal and its on-going operation.

For the initial development the obvious choices are through budget appropriation or by seeking support from a donor.

In terms of the on-going operational costs and, should the development have been funded from the national budget, the Steering Committee may consider whether these costs and the capital investment could be recovered through levying a user fee or some other means.

In the spirit of transparency and trade facilitation it is the government’s obligation to make regulatory information freely available to the public. It is therefore difficult to see how a financing model (e.g. a subscription only service) could be built around providing information which should be freely available in the public domain. Furthermore, the Trade Information Portal would not provide a transactional service where a transaction fee can be justified by the added value that would result from a simplified electronic process.

However, if recovering costs is imperative, the Steering Committee may wish to consider the following options:

- a. Levy a moderate fee for certain value added services (see Section 5.4.5 below). These could be subscription only services such as providing targeted alerts by email or SMS about specific topics of interest to a subscriber or downloading publications which should otherwise have been purchased
- b. Assuming that a country has not yet implemented an electronic transaction environment such as Single Window, allow for forms required by traders to apply for permits or licenses from various agencies to be downloaded instead of having to pick up an original from the agency and levy a fee commensurate with the degree of facilitation that this provides. This would, however, require some functionality to be built into the website's software to ensure that a form can only be used once (e.g. a unique barcode for every download) as well as some automated facility within each agency to authenticate and reconcile the form submitted
- c. Another possibility is to make advertising space available on the website

Option a) and b) would also involve having to implement some form of electronic payment and, generally, would add to the complexity and cost of developing the website.

When evaluating these options, the Steering Committee should weigh the benefit of collecting a fee against national policy decisions to facilitate trade and increase transparency, as well as the broad benefits that would derive as a result of increased use of the website (e.g. cost savings in disseminating information and from reduced face-to-face interaction to handle queries or resolve conflicts).

#### 4.4.11 Risks and Impediments

The Project Team, as part of developing the Strategic Plan, should identify any potential risks and impediments that may prejudice the success of the project.

It is customary project management good practice to catalogue these risks in a *Risk Register* and to evaluate the likelihood of the risk occurring together with the impact it would have on the project. The Project Team should also develop appropriate mitigation strategies in the event of the risk materializing.

During the course of the project the risks should be continuously monitored and the Project Team should be ready to implement the necessary avoidance or mitigation strategies.

To a large extent the potential risks for this kind of project will be the same as any ICT project and good management practice should be adopted in order to manage these risks.

Other risks will be specific to the circumstances of each country.

Also, a number of the provisions recommended above and a clear strategy for the project will go a long way towards mitigating the risks of failure that would result from an unclear vision of the objectives, lack of ownership and direction and poor planning.

Perhaps the highest risk specific to this kind of project is the failure to collect complete and accurate quality information from all the Agencies and aggregate it in a user friendly and informative way. This would result in a poor image in the mind of the public of the usefulness of the website and lack of confidence in the government.

Information may be kept by the Agencies in an organized format (e.g. databases, folders, lists, etc.) or it may simply be knowledge residing with key individuals. The task of identifying and structuring this information may therefore prove to be challenging.

Furthermore, as mentioned earlier, agencies may be unwilling or unaccustomed to sharing information or they may simply find it difficult to source it. It is therefore important that the Project Team should have the necessary authority to collect the information and that appropriate instructions are given to all the individuals within the agencies who will be tasked with assisting the Project Team.



Much will also depend on the skill and experience of the Project Team members to scout for information and extract the required knowledge from their counterparts. Therefore a choice of individuals with a broad understanding of the context and the background as well as the necessary analytical skills will be crucial.

After the initial set-up and once the website is operational, on-going inter-agency collaboration will

be necessary for the website to stay relevant and up-to-date. There is a risk that, without proper institutional arrangements to ensure a proactive supply of information from the agency to the Trade Information Portal, the flow of information will dry up and agencies will fall back on their old stove-piped methods for disseminating information to the public. The Steering Committee should issue the proper authority and instructions to ensure that on-going proactive collaboration is institutionalised.

### **Key Recommendations**

- Select a domain name which clearly identifies the nature and scope of the Trade Information Portal as well as its national identity
- Carefully consider the cost implications and skill requirements of purchasing and maintaining an in-house infrastructure for the website versus procuring an outsourced or cloud model
- Select an approach to the technology platform for the development of the website which is appropriate to the level of skills and experience available for development and to budgetary constraints. Consider that the design of the database and the functionality built around it may require specialist Information Systems design and engineering skills and, if these are not available in-house, a policy decision must be made on how to procure them
- Address at the onset the issues to be considered in order to ensure the future sustainability of the project. In particular consider the need to appoint a dedicated Trade Portal Management Team
- Develop an early estimate of the budgetary requirement to cover the on-going support costs and take the necessary steps to ensure that the budget is made available
- Consider the implications of making the information on the website legally binding
- Evaluate whether a fee based financing model is feasible and/or desirable
- Carefully assess the risks that may prejudice the success of the project and develop appropriate avoidance or mitigation strategies



## 5.1 Implementation Plan

Once the key options laid out in the Strategic Plan have been approved by the Steering Committee, the Lead Agency may proceed with the development and implementation phase of the project. Hereinafter, the project is a classic IT project comprising definition, build and implementation. There are a number of good practice project management methods that the Lead Agency can follow and their preference will dictate this choice. One of the prevailing methods in the IT industry, for example, is PRINCE2, a project management method developed by the UK Central Computer and Communications Agency.<sup>12</sup>

The first task for the Project Team will be to develop an Implementation Plan. This Guide does not seek to be prescriptive about its methods, style and content. However, its objective is to provide the benchmark against which the project's progress, quality and success are measured.

In broad terms, an Implementation Plan should probably cover the following topics.

- Re-statement of the project key objectives
- Scope of work (quantification of tasks, e.g. number of laws to be collected, pages to be published, etc.)
- Work method including management, control and accountability
- Project Team structure
- Required counter-part resources
- Estimate of work effort
- Statement of Requirements (Functional Requirements, Operational Requirements)
- Functional Architecture (definition of the functionality of the system)
- Technical Architecture
- Application software design specifications
- System software specifications
- Physical infrastructure specifications
- Hosting service specifications
- Estimate of development costs
- Estimate of procurement costs
- Estimate of on-going service costs
- Project Plan with deliverables, milestones and assignment of responsibilities
- Quality standards
- Acceptance criteria and procedures
- Procurement Plan
- Training Plan
- Risk Register

Some of these topics are part of standard ICT project methodology and this Guide will not dwell on them. The key topics relating to this particular context are expanded in more detail in the sections below.

Perhaps the most challenging of the tasks during implementation will be collecting all the required information from the different Agencies to load onto the website. The Project Team should give consideration as to how this is going to be achieved. As mentioned earlier this will require a legal basis for collaboration between agencies but it will also require manpower to locate and collect the source data, format it so that it can be loaded into the system as well as key it in where necessary. Some content, e.g. the general information pages, will need to be generated if it is not already available elsewhere.

In formulating a resource plan the Lead Agency should consider the feasibility of forming an implementation team that comprises representatives from each of the Agencies. Again, this will require agreement between the agencies to enable this 'secondment'. However, the advantage would be that information can be identified and sourced by personnel who are competent in their specific domains

and who have unrestricted access to people and resources within each of the agencies. Furthermore, it would establish a collaborative basis for a working model which can then be applied, in a scaled down format, to the on-going operation of the portal.

## 5.2 System Architecture

In this section we describe the key issues concerning the technical approach for building the website and populating it with information.

The options concerning the technology platform have been outlined in Section 4.4.5 above. The Technical Architecture will therefore be largely dependent on the strategic choices made.

However, as mentioned in that section, it would be desirable for the website to provide functionality beyond displaying static HTML pages.

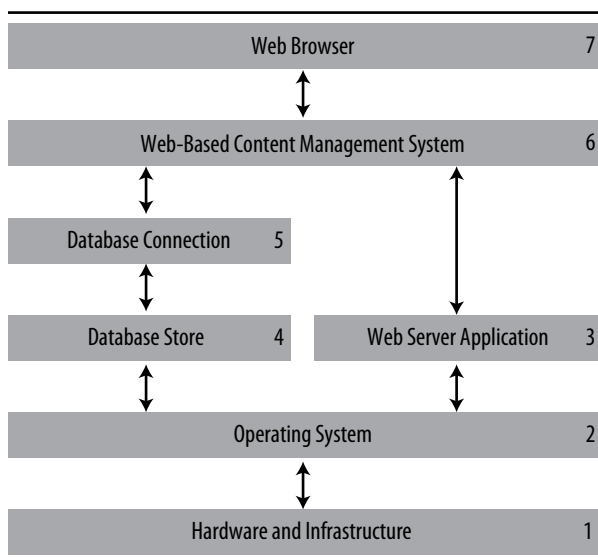
In order to display complex inter-related information in response to a query, the information needs to be stored in a database and the system must be able to carry out certain inter-actions with the users, create dynamic content in response to their queries and format it for screen viewing. It is therefore necessary to design a database that will be stored on

the host server and to use a programming language to generate the content.

There are various technology products, both proprietary and open source, that allow such a system to be constructed. Therefore this Guide does not seek to be prescriptive in this respect. The choice, as mentioned earlier, will depend on preference and familiarity with specific technologies.

However, in general terms, the system should comprise the software layers illustrated in the following picture bearing in mind that, if the option of using an off-the-shelf CMS is selected, these components may be wrapped up in a single bundle.

**Figure 1. System Architecture**



### 1. Hardware and Infrastructure

These are the computers (servers), peripherals, telecommunication equipment and lines. In an outsourced model, the hardware and infrastructure would be provided by the hosting service.

### 2. Operating System

The most popular operating systems for hosting websites are UNIX derivatives such as Linux with approximately 64% share and Windows with about 36%.<sup>13</sup>

### 3. Web Server Application

The web server application (commonly known as web server) is a set of services that provide the connectivity between the Content Management layer and the end-user via the Internet. The most popular web servers are Apache (in a UNIX environment) and IIS in a Windows operating system environment.<sup>14</sup>

### 4. Database Store

Popular choices for databases, depending on the operating system, are Oracle or SQL Server or open source products like MySQL.

### 5. Database Connection

The database connection is the layer that handles the data transfers between the application and the database. This is normally bundled with the choice of database.

### 6. Web-Based Content Management System

This is the application which provides the required functionality to structure the data and manage the interaction with the users. It provides web-based facilities to display, add, edit

and remove data. By far the most popular language is PHP,<sup>15</sup> an open source product, followed by Microsoft's ASP.NET and Java.

#### 7. Web Browser

The Web Browser is a tool resident on a client computer for end users to interact with the system based on their access privileges. There are different browsers in use and the system should be designed so as to be compatible with the prevailing browsers (e.g. Explorer, Firefox, Chrome).

### 5.3 Data Model and Database Design

In order to cater for the kind of queries described above the database needs to be designed to reflect the relationship between the data entities.

The diagram below (Fig. 2) represents, in a simplified Entity Relationship notation,<sup>16</sup> a generalized model of what data entities would be required to store the information and how they inter-relate.

The boxes represent 'entities', i.e. classes of information which will need to be published on the Trade Information Portal.

The generalized entity model can be used as the basis for the database design.

The model addresses the main classes of information. A detailed analysis will reveal various other classes which can be used to enforce referential integrity and to further enrich the data, e.g. country codes, currency codes, activity codes (import, export, transit), etc.

The structure below is a generic suggestion. The specific circumstances in each country may result in variations but the core elements should not be too dissimilar.

The rationale for structuring these classes of information and for identifying their referential relationship is in order to provide a quick path to aggregating all the inter-related information following a specific query by a user of the website.

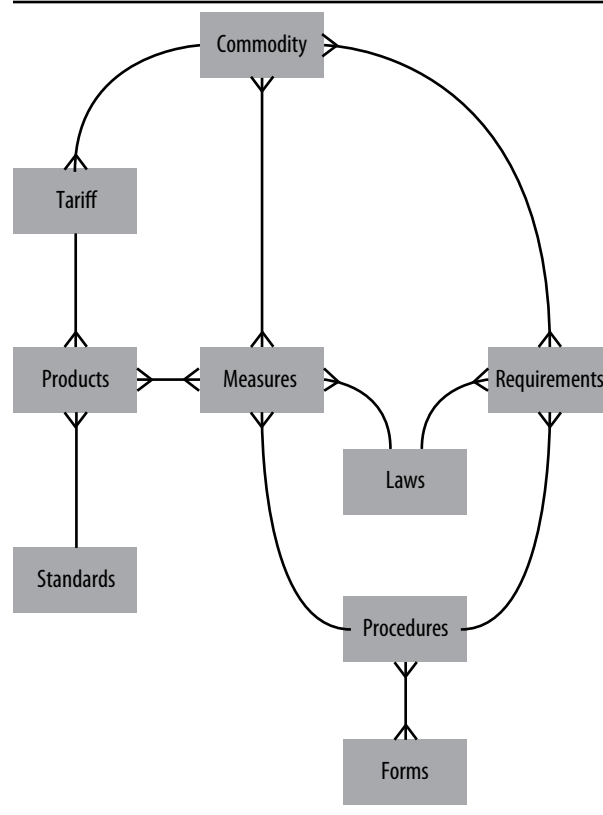
The relational nature of this conceptual model is such that it can provide a path to logically related in-

formation regardless of the angle from which a trader may approach a query, as described in Section 5.4.3 below. The objective is to allow traders to discover anything they need to know in the easiest and quickest possible way without having to navigate through several pages of information or menu options.

The model above suggests that the core element of information is the Commodity. Commodities are normally classified using the Harmonized System (HS).

The HS Code that identifies a commodity is made up of 8 digits according to the following structure:

**Figure 2. Information Relationship Model**



In some countries, more than 8 digits may be used for a commodity code in order to provide for country-specific sub-divisions of the commodity.

A *Tariff*, i.e. the rate of duty applicable, is associated with each commodity code. There may be more than one tariff associated with a commodity as a country

Heading				
Chapter	Sub-Chapter	Sub-Heading	Code	Description
XX				Chapter Description
XX	XX			Sub-Chapter Description
XX	XX	XX		Sub-Heading Description
XX	XX	XX	XX	Commodity Description

may apply a special rate of duty to countries that are parties to an FTA and another rate of duty to all other countries. The database design should allow for tariffs to be related to both imports and exports though, in practice, in most countries, most commodities do not attract an export duty.

A commodity code may encompass several *Products* and these may be defined by international product codes (like in the case of pharmaceuticals) or, simply, by the manufacturer's own product identifier.

An importer wishing to import a certain product may need to ensure that it complies with certain technical *Standards*. These may be national standards determined by a law or a regulation or they may be recommended standards based on international standards which the importer may choose to comply with. Exporters may need to ensure that their products comply with certain standards if these are mandatory in the destination country.

A *Measure* is a specific restriction or prohibition that applies to a commodity or to certain types of products. Typically a *Measure* could relate to sanitary or phytosanitary regulations. In these cases, permits or licenses may need to be obtained from the relevant government agency prior to importing or exporting the goods.

A *Measure* may also be a permanent prohibition to import or export certain products (for example, psychotropic drugs) or a temporary prohibition to enforce a quota or for other reasons.

*Requirement* is a generic term for any specific mandatory instructions for certain commodities or products, e.g. the need to obtain an automatic or non-automatic import license. In our conceptual database design, the entity *Requirements* can be used to asso-

ciate any type of special instruction to a product or a commodity, such as an obligation to clear certain goods at specific border posts, etc.

Measures and specific requirements are normally enforced through a legal instrument such as a law, a decree, a regulation, etc. These are represented by the entity *Laws*. A legal instrument may apply to a number of commodities or products.

The entity *Procedure* represents the steps required to import or export goods, each step being an interaction between the trader and a government agency. The normal procedure for clearing goods for import or export with Customs generally applies to all commodities according to the specific regime. However, commodities that are subject to specific measures or requirements may involve additional or different procedures which may need to be followed with other government agencies, e.g. quarantine.

In many developing countries where the processes for obtaining permits and licenses or clearing goods have not yet been fully automated, there is usually a reliance on paper forms to submit applications for licenses and permits or declarations. Often, more than one form is required to complete a transaction. In the conceptual database design (Fig. 2), these are represented by the entity *Forms* and are associated with a specific procedure though it is conceivable that the same form may be used in more than one procedure.

## 5.4 Functional Architecture and Content

The *Functional Architecture* should define the structure of the website in terms of the facilities that it provides, how the pages of information are struc-

tured for viewing and the navigational features that allow the users to reach the information they require.

The content of the website is a matter for each country to decide and will be specific to the particular circumstances of that country. However, below, is a list of potential topics and features that the website could offer. Many of them are standard features of modern websites.

### 5.4.1 Standard Features

#### *Language Selection*

In some countries it may be necessary to provide an option to view the website in the local language as well as in other languages, such as English and/or French, for the benefit of international users. In this case, one option would be for the top level landing page to offer the choice of preferred language.

Once 'inside' a language there should be an option on every page to switch to the other language/s by clicking on a link.

Technically, multi-language capabilities can be provided in different ways. For example, parallel data sets can be stored in the database or two or more separate databases can be maintained. The developers' preference will dictate the choice of technical approach.

#### *Home Page*

This is the 'welcome' entry page of the Trade Information Portal. This page could give a general introduction about the website and brief guidance on how to use it. This page would also have all the top level menu links to other pages on the website organized by topic.

Many websites show on the Home page a list of recent news, announcements, forthcoming events and other topical information. Most CMS's offer standard technology features that allow these lists to be refreshed automatically every time a new item is added.

#### *About Us*

This is a common page on many websites that is used to describe the organisation that is represented by the website, its mission and the purpose of the website.

#### *Site Map*

This is a list of the topics on the website organized hierarchically which allows user to find the desired topic quickly and, by clicking on the link, go straight to the relevant page.

#### *Terms and Conditions*

This page would be used to publish any legal disclaimers and the terms governing the use of information published on the website.

#### *FAQ (Frequently Asked Questions)*

This is a common feature of many information websites. The most common questions submitted by the public are listed and categorized with the relevant answer. Some CMS's will have features that allow this page to be refreshed automatically with actual queries submitted by the public.

#### *Help*

This page should provide explanations on how to use the various features of the website. It would be helpful if the Help topics were indexed.

#### *Commonly Used Terms*

This is a helpful page that could provide an explanation of various terms and acronyms used throughout the website.

#### *Contact us*

Most information websites provide a page with telephone numbers, physical addresses, maps and where it is also possible to submit a question using a template form. Most CMS's will provide standard facilities to generate this kind of page. In our

context, as the query could be directed to one of many different agencies, it would be helpful if the contact form included a drop-down selection for the category of query so that the system can route it automatically to the pertinent authority.

Many websites use a ‘Capcha’ in contact forms. ‘Capchas’ are computer generated codes that are not machine-readable but that are readable by a human. The user is asked to type the code he or she sees into a field. This method is used to ensure that the query is submitted by a real person and not by an automated spam robot.

### **Feedback**

Many websites provide a form for capturing a feedback from the public about the website. Feedbacks are useful to analyze the reaction of the public to the website and identify any areas of potential improvement.

The form may offer a set of questions with multiple choice answers selectable via radio buttons (e.g. *“How did you find our website?”*, *“Did you find the information you were looking for?”*, *“How do you rate our website?”*, etc.) or it may simply provide a free text feedback form.

One might consider making this form ‘pop up’ on a random basis to encourage a user to submit a feedback.

### **Website Search**

Most websites provide a facility to search for keywords across all contents of the website. The results of the query should provide short-cut links to the relevant topic page. Most CMS’s provide built-in facilities to search the contents of a website. Some degree of customization of this search facility may be required as the search engine would have to search for data held in the database rather than just free-standing HTML text.

### **Other useful links**

It is normally good practice for a website to provide hyper-links to other websites of related interest.

These could be the Agencies’ own websites, certain trade organizations (e.g. Chamber of Commerce) or the websites of relevant international organizations, e.g. WTO, WCO, WHO, etc.

A disclaimer, however, should be shown to the effect that the Trade Information Portal is not responsible for the content of these websites and that they are operated under different Terms and Conditions.

## **5.4.2 Periodic Features**

These are standard facilities that give topical information to the public as and when it becomes available.

Many websites display the latest news items, announcements or forthcoming events in discrete sections of the Home Page so that they are immediately evident. From there it is then possible to drill down to a full page to read more about the specific item or search for past items.

Most CMS’s have built-in components that allow the generation of these dynamic features, such as:

- News items about recent events, activities and, generally, any topics of interest to the trading community
- Announcements, e.g. a new law coming into force, a change in procedures, new SPS measures, etc.
- Calendar of Events, e.g. seminars, workshops, conferences, “open days”, etc.
- Publications, e.g. e-bulletins, newsletters or PDF copies of brochures or other material

## **5.4.3 Trade Information Search Features**

These are the pages that should provide the regulatory information required by traders in a comprehensive and structured format.

The suggestions below are based on the assumption that the website will have, at its core, a database where information relating to commodities, measures, procedures, etc. is structured according to the model described in Section 5.3 above.



The rationale for the following facilities is to attempt, having identified the way in which information inter-relates, to cover all the angles from which traders may wish to reach the information they require.

### Search by Commodity

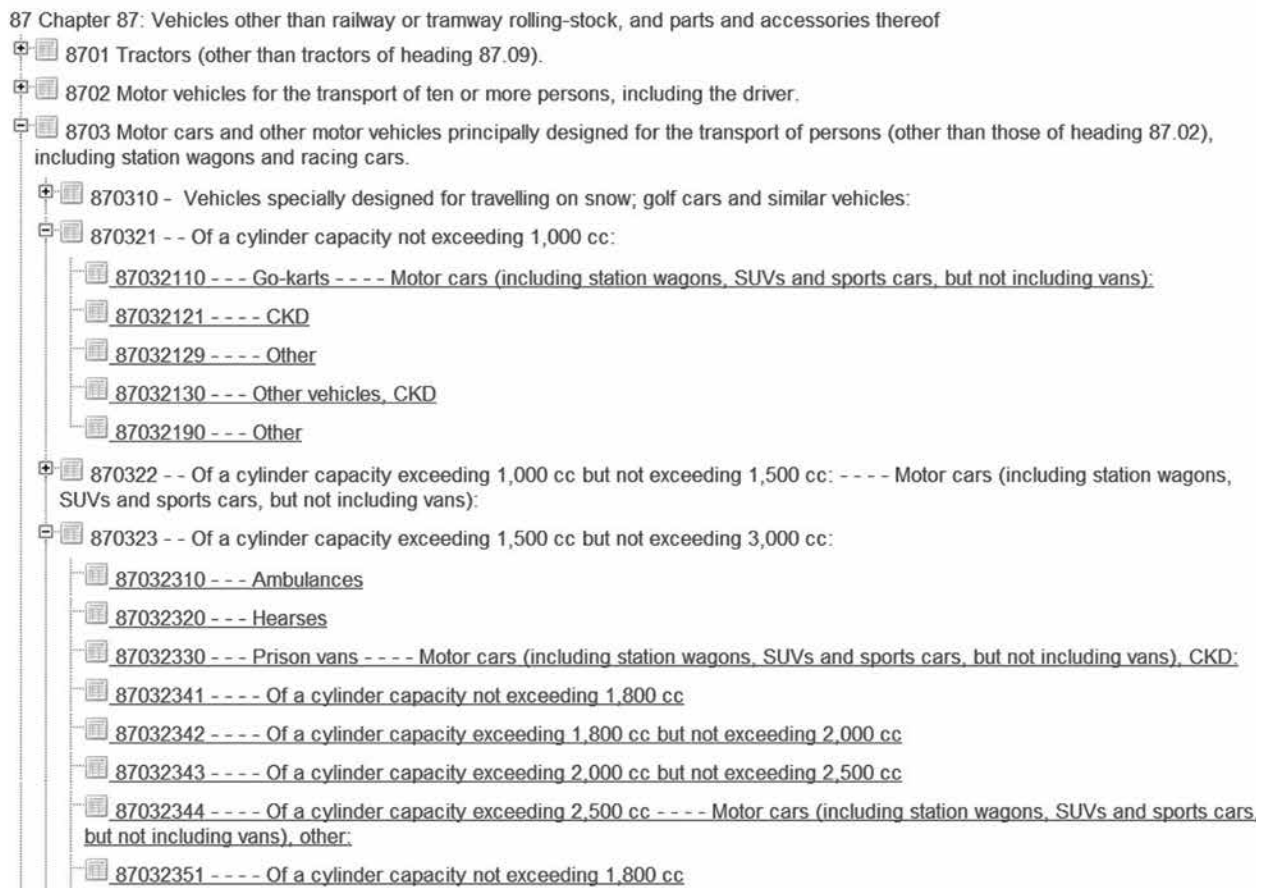
This page would allow a user to select a commodity by HS Code, part of HS Code or by keywords in the commodity description.

The result of the query could be presented in a structured, dynamic format which allows traders to drill down to the specific commodity they require, as in the example below.

Once the trader has clicked on the commodity he or she requires, the system may display the tariff/s, any special measures or requirements and any specific procedures applicable to that commodity, as in the example below.

In the screen below, the result of the query cross-references the law that relates to the specific requirement to obtain an import license and the forms that are to be used when following the required procedure. The trader can drill down and expand on this information by clicking on the links.

**Figure 3. Result of structured query on Commodity table**



**Figure 4. Result of query on specific commodity**

Code

87013020—Of a cylinder capacity exceeding 1,100 cc

**Tariffs**

Displaying 1–2 of 2 result(s)

Country Group	Activity	Tariff Rate	Unit	Valid From	Valid To
MFN	Import	5.00	NMB	01-05-2010	31-12-2010
CEPT	Import	0.00	NMB	01-01-2012	31-12-2012

**Measures**

Displaying 1–1 of 1 result(s)

Name	Type	Agency	Description	Comments	Law	Validity
Requirement to obtain automatic import license – Road Vehicles	Licensing Requirement	Ministry of industry and Commerce	Road vehicle, except road vehicle with three wheels (87.04.31)	For statistical purpose	<a href="#">Notification No. 0076 – Annex A List on Goods subject to Automatic and Non-automatic Import Licensing</a>	31-12-9999

**Procedures**

Displaying 1–1 of 1 result(s)

Name	Description	Category	View Procedure Detail with Relevant Forms	View Procedure Detail with Relevant Commodities
Application for Import License	Application for Import License	Import	<a href="#">View</a>	<a href="#">View</a>

**Search by Measure/Requirement**

Conversely, a trader may wish to look up a specific measure or special requirement (e.g. SPS) and find out the commodities to which it applies and which procedures, if any, are required to comply with that measure. In this case, the system should be able to link to and present the necessary information (See Figure 5).

The trader should then be able to ‘drill down’ on related records (e.g. Law or Commodity) to expand that information.

**Search by Procedure**

Yet again, a trader may wish to identify commodities to which a specific procedure applies, which

measures and laws determine that it should be applied or which forms are required in that procedure.

The system should produce a query result similar to the ones above.

It may be beneficial to present a procedure as a series of steps in an intuitive flowchart format (See Figure 6).

If the technology allows, it would be desirable to be able to click on a box to expand it with more information or cross-link it to related information. For example, clicking on *Application Form* may open a window where a PDF copy of the form is displayed or clicking on *Proceed with Import* may bring up the full *Clearance for Import* procedure.

**Figure 5. Result of query on specific measure**

View Measure	
Name	Requirement to obtain automatic import license – Road Vehicles
Description	Road vehicle, except road vehicle with three wheels (87.04.31)
Comments	For statistical purpose
Validity From	13-01-2012
Validity To	31-12-9999
Reference	
Technical Code	
Agency	Ministry of industry and Commerce
Created Date	2012-02-09 14:30:17
Updated Date	2012-02-10 15:04:41
Status	Active
Measure Type	Licensing Requirement
Legal/Regulation	<u>Notification No. 0076 – Annex A List on Goods subject to Automatic and Non-automatic Import Licensing</u>

This measure applies to commodity/ies

Displaying 1–10 of 180 result(s)

HS Code	Description
87012010	--CKD
87012090	-- Other
87013020	--Of a cylinder capacity exceeding 1,100 cc
87019011	---Of a cylinder capacity not exceeding 1,100 cc
87019019	---Of a cylinder capacity exceeding 1,100 cc--- Other
87019091	---Of a cylinder capacity not exceeding 1,100 cc
87019099	---Of a cylinder capacity exceeding 1,100 cc
87021011	---Of a gross vehicle weight of less than 6 t
87021012	---Of a gross vehicle weight of at least 6 t but not exceeding 18 t
87021013	---Of a gross vehicle weight of at least 18 t but not exceeding 24 t

Failing that, annotations at the bottom of the diagram would also serve the purpose.

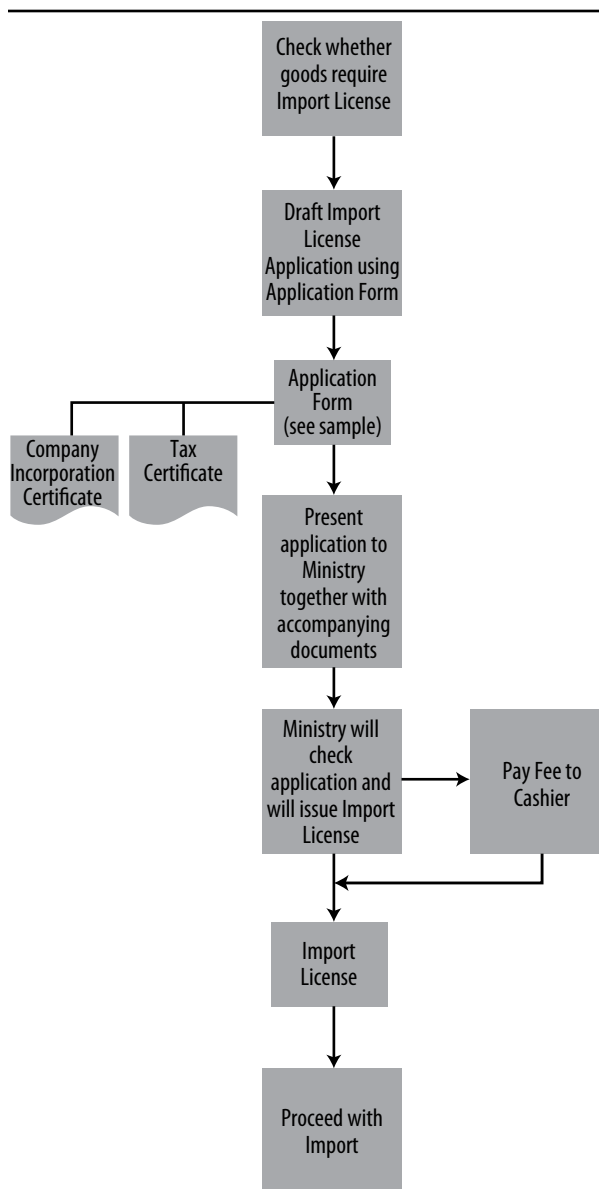
### **Search Legal Documents**

At the core of a Trade Information Portal should be a catalogue of all the laws, regulations, instructions, notifications or other legal texts related to trade.

On many websites legal texts are stored in PDF format. PDF is an image of an original document. De-

pending on how the image was generated, the text in the image may be searchable but, in many cases, it may not be. PDF is useful if a user wishes to download the document for printing or exchanging. However, if the legal texts were simply stored in PDF format it would not be possible in all cases to search for keywords inside the text of to cross-reference specific sections of the document from links in the website.

It is therefore desirable to load the legal texts in the database as HTML text so that all text is searchable

**Figure 6. Example Procedure Flowchart**

and anchors can be placed against each article or section so that it can be cross-referenced directly from other places in the website.

By placing an anchor on each article it also becomes possible to create an index at the front of the document.

This is likely to be a laborious exercise as the sources for these legal texts may not be in a very friendly electronic format and may involve scanning with OCR,<sup>k</sup> conversion, indexing or, in the worst case scenario, typing the content in manually.

This exercise, however, is highly recommended as it would allow reference to the law or to a specific article of law to be made by means of a link from anywhere in the website where that reference is relevant.

It is recommended that an accurate catalogue of all the sources of legal texts is built with an assessment of what it would take to convert each one into readable format and that this estimate is factored into the man-effort required for the project.

#### 5.4.4 General Trade Related Information

As well as the structured information above, a Trade Information Portal would benefit from having pages where the information about what a trader needs to do to import or export goods is presented in plain language and arranged logically by easily identifiable topics.

This could be organized with topics such as *What to do to Import Goods*, *What to do to Export Goods*, *What to do with Goods in Transit*, *When do I require an Import License*, etc.

This Guide does not try to be prescriptive in this respect. The content and style are very much a matter for each country to decide. What is important, though, is to offer traders the opportunity to discover information following a logical, easy to understand narrative rather than having to search through different laws, decrees, etc. and having to piece the information together by themselves.

This may sound relatively easy. However, what it means is that information pertaining to different agencies has to be brought together in a logical continuum and this may present the same difficulties described earlier in the context of exchanging information between agencies. Often, agencies enforce their own rules without regard to how they impact on the job of other agencies. Therefore, in the sub-text of this subject, is the implication that tying together a sequence of steps involving different agencies carries legal value (or at least a degree of authority) by virtue of the fact that it is published on a government website.

<sup>k</sup> OCR: Optical Character Recognition

Drafting these information pages will also require a legal mandate for whoever does the drafting to make statements that are in line with the laws and with common practice.

#### 5.4.5 SPS and TBT Pages

The WTO's *SPS* Agreement requires members to publish all sanitary and phytosanitary regulations promptly and to establish a point for submission of enquiries by other members.<sup>17</sup>

Similarly, the *TBT* Agreement requires members to establish an enquiry point for technical standards<sup>18</sup> for a similar purpose.

Although not explicitly stated, WTO members tend to fulfil this commitment by publicizing the enquiry points on a website. In many countries the location and contact details of the enquiry points are published on the website of the government agency that is tasked with operating the enquiry point. In a number of developing countries, however, there has been a tendency to create a website dedicated to the enquiry points (e.g. Ghana,<sup>19</sup> Nepal<sup>20</sup>). There are probably various reasons for this but one may be that there was no existing suitable website to publish them on.

A country that is implementing a Trade Information Portal and that is also in the process of establishing SPS and TBT enquiry points may take the opportunity to create pages on the Trade Information Portal to fulfil this commitment given that the website is also the place where all measures would have to be published. It should also be possible to submit enquiries directly to the enquiry points using the website's contact form facilities.

The enquiry point pages could also be the springboard for more information about sanitary/phytosanitary matters and technical standards, including links to relevant international organizations, and the news and announcements facilities could be used effectively to disseminate SPS and TBT specific information.

#### 5.4.6 Special Features

All the facilities described above are aimed at giving information to the public in a transparent and clear

manner. However, these are "passive" facilities in that the public has to look for what they want to discover.

Modern technology allows the opportunity to create facilities that proactively address the information needs of the public whilst allowing government to get close to traders to understand their needs, monitor their reactions and behaviour and, ultimately, offer them a better service tailored to their needs.

These facilities could be "value added" services made available to those users who wish to open a subscription to the website. The website would give an option, probably on the Home Page, to register as a subscriber. Normally, to register, the user would supply some details such as name, address, type of business, etc. but these are not essential. The minimum requirement is to supply an email address which could also serve as the login ID and a password which the user can select and change at will.

Possible value-added subscription services could be:

- Subscription to publications, news items, announcements, notices of future events. If these items were categorized in the database (e.g. Customs News, SPS News, etc.) subscribers could pick which categories of information they are interested in and the system could send them an email or SMS alert every time such an item is newly added to the website.
- A "Follow" facility that would allow subscribers to bookmark specific commodities that interest them and receive an alert every time something is added to that commodity or something changes, e.g. a new measure or the expiry of a measure, a new regulation, etc.
- The website could send out, from time to time, questionnaires or surveys to subscribers to elicit their opinion about various issues. One possible use for this feature is to conduct public consultations prior to a new law being introduced.

### 5.4.7 Website Management Features

Like every IT system a Trade Information Portal will require administration and maintenance facilities. The system should therefore cater for administrator level functions to allow for code and data updates, user management, diagnostics, etc.

In a more specific context, however, the system should provide facilities to monitor and analyze usage. There are many web usage analytical tools available (e.g. Google Analytics) that can be bolted onto the website or the hosting service may provide one of its own.

Website analytical tools collect information about the “hits” on the website and extrapolate various indica-

tors such as the number of pages a user has dwelled on, how long was spent on each page, which searches were carried out, etc. Analytical tools can also identify from the IP address the location of a visitor and can therefore provide statistics about where the users are located anywhere in the world. Usually, these tools provide a “dashboard” where information is presented in various graphic formats.

These analytical tools are valuable instruments for monitoring and understanding the public’s behaviour and preferences as well as extrapolating various indicators such as geographical usage, most used information, etc. However, in order to obtain more qualitative information about the public’s perception of the website and its usefulness, more targeted strategies are required (see Section 7 below).

#### Key Recommendations

- Develop a detailed Implementation Plan to ensure that the Steering Committee has a full understanding of the scope of the project, the features and contents of the website and the human resource effort and cost required to build it
- The Implementation Plan should be built following good practice in ICT projects and should comprise a Project Plan, System Architecture, Database Design Specifications and Functional Architecture
- Develop the Project Plan according to good practice in project management comprising a detailed task list, assigned responsibilities, milestones, resource allocation and quality attributes for each task
- A clear plan should be in place for how the information is going to be collected and loaded onto the website and what resources will be required, comprising, if possible, personnel seconded from the stakeholder Agencies
- Update the Risk Register to the detailed level reflected by the Project Plan and monitor the risks constantly ready to activate avoidance or mitigation strategies

## 6.1 Policies and Procedures

Like every ICT operation, the on-going functioning of the Trade Information Portal should be governed by a set of good practice policies and procedures covering hardware and system maintenance, security, disaster recovery, etc. The Project Team should develop a Policies and Procedures Manual to cover these topics.

In a more specific sense, a set of policies and procedures should be put in place to ensure that information on the Trade Information Portal is always kept up-to-date with recent changes and new items of interest to the public.

This will require the legal basis described in Section 3.3 above but the mechanisms for how this is going to function need to be codified. In this respect, the Policies and Procedures Manual should comprise:

- A definition of what constitutes an item of information that should be published on the website, e.g. a piece of news, an announcement by an agency, a new publication, a new draft of a law, a new regulation, a change of procedure, a new SPS measure, etc.
- Guidelines about the timeliness of publishing such information
- The method by which such information is communicated to the Trade Portal Management Team, e.g. by email, by official letter, etc. It is conceivable that, in time, agencies may be able, with suitable training, to upload this information directly to the website.

- The method for vetting the information before being published and being approved by management. In this respect, it is advisable that the information should be uploaded to the local development and testing environment so that it can be vetted and approved before uploading it to the live environment.
- The method by which queries submitted to the website by the public are routed to each agency and how these will be dealt with. In this respect it would be useful if the website had facilities to monitor the progress of queries that have been received and a mechanism was put in place for the Agencies to communicate to the Trade Portal Management Team their internal progress with handling a query. This can be catered for by the Agencies agreeing to use collaborative workflow management software or specialist Help Desk software. This would be a useful feature in measuring the effectiveness of the website as shall be discussed in Section 7 below.
- Roles, responsibilities and accountabilities of the parties involved in the operation and maintenance of the website.

### Key Recommendations

- Implement good practice ICT policies and procedures for the operation of the Trade Information Portal
- Develop a set of policies and procedures to ensure that the portal is always kept up to date with new information





## Measuring the Effectiveness of the Trade Information Portal

The effectiveness of a Trade Information Portal should be measured in terms of the degree of facilitation that access to transparent and accurate regulatory information would offer trade practitioners. However, measuring the effectiveness of Trade Facilitation in terms of the direct and indirect savings to trade in transaction costs is a notoriously complex endeavour which involves taking into account many factors other than the regulatory environment, e.g. the supply chain environment, the usage of e-business, etc., that are tightly inter-related. To quote an UNCTAD report on Trade Facilitation: “*The experts agreed that quantification of the benefits of comprehensive trade facilitation programmes was an extremely difficult task*”.<sup>21</sup>

Attempts have been made to measure the benefits of trade facilitation where ‘transparency’ of the regulatory environment is given a measurable value as part of an overall formula (see *Wilson, Mann, Otsuki*<sup>22</sup>). However, publishing regulations and information on a portal is only a part of transparency. How those regulations are interpreted or applied in practice during an actual transaction is also a factor.

Nonetheless, models like the WCO’s Time Release Study (TRS) could be used to extrapolate the effectiveness of a Trade Information Portal if carried out as a comparison on a before and after basis. It is important, however, to ensure it measures the effectiveness of the entire import/export cycle including interactions with various other agencies prior to the goods arriving at the border.

That said, it should be possible to use various methods to try and gauge the effectiveness of the Trade Information Portal. For example, the Feedback feature can be used to send out targeted questionnaires to the public in order to try and quantify the degree of facilitation offered. Questions such as “*To what extent has the Trade Information Portal saved you time in obtaining information?*” with a choice of answers such as “*Not at all*”, “*To some degree*”, “*To a*

*good degree*”, “*Greatly*” can be fed into a statistical model that can extrapolate trends.

The usage monitoring tools can be used to extract statistical trends. A steady increase in the number of hits and time dwelled on the website would probably be a good indicator of the increased reliance by the public on the website.

The number of queries submitted via the website and a feedback about the usefulness of the replies could be analyzed against a benchmark of the number of queries handled by an agency prior to the website. This benchmark, however, may be difficult to establish because, in an environment where most transactions with agencies are carried out face-to-face, the enquiry to discover information is wrapped up in the process of carrying out the transaction over the counter. Nonetheless, over time, it may be possible to measure, both from the client’s side and the agencies’ side, the length of time it takes to complete a transaction. If this time decreases, it could be an indication that transactions require less explanation or are less likely to be subject to mistakes.

Ultimately, trade facilitation is what trade practitioners perceive it to be. Therefore, the agency in charge of the Trade Information Portal should endeavour to sound out public opinion in whichever possible way. For example, the agency could consider holding regular seminars or training workshops on how to make best use of the website and use these opportunities to invite comments from the public.

### Key Recommendations

Despite the recognized difficulties in measuring trade facilitation, adopt a proactive approach towards attempting to measure the success of the Trade Information Portal in terms of the degree of facilitation that it offers to trade practitioners. Utilize the technology to elicit comments and reaction from trade practitioners and enter into frequent consultation to gauge public opinion.



## The Trade Information Portal and the Single Window

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The concepts of Trade Information Portal and Single Window are often mentioned in the same breath. It is true that there is a conceptual thread running between the two in that they are both aimed at trade facilitation by providing a single access point to trade practitioners. However, in the case of the Trade Information Portal the single access point is to facilitate access to information whereas, in the case of the Single Window, the single access point should be, under the UN/CEFACT definition, “a facility that allows parties involved in trade and transport to lodge standardized information and documents with a single entry point to fulfill all import, export, and transit-related regulatory requirements”<sup>23</sup> which, these days, is taken to mean a facility that does so as an electronic platform for submitting and exchanging messages.

In practice, the two facilities require a different technical architecture, governance model and, most importantly, legal basis.

The Trade Information Portal deals with information which should be openly available in the public domain and does not involve any transactions between trade practitioners and government. Therefore, the issue of data protection is not of high concern, as discussed in Section 4.4.9 above. By contrast, the Single Window deals with transactions between the public and various government agencies that carry the legal value of a declaration and that could be used as evidence. Furthermore, these transactions carry commercially confidential data. In order to establish a Single Window it is therefore necessary to have a solid foundation in data protection and e-commerce law for which UNCITRAL provides a good generic model.<sup>24</sup> Furthermore, the Single Window, depending on its functional design, may require additional legislation to enable data submitted to one agency as a single submission to be shared by and have legal value across different agencies.

From this, it follows that all aspects of the Single Window, from system design to security features, governance model and operational model, must take into account the rights and liabilities involved in a legally binding transaction and these should be enshrined in a SLA or similar instrument between the provider and the clients. What should also be remembered is that whoever operates the Single Window facility is not only providing a service to the public but also a service to all the government agencies involved and, if the provider is a Lead Agency, this means that a SLA must also be in place between that agency and the other government stakeholders.

There is, however, merit in viewing the Single Window as part of an incremental trade facilitation continuum that starts with the Trade Information Portal (assuming that this is implemented before the Single Window) establishing the concept of a single access point to interact with government. After all, discovering information is the first step on the way to actually transacting the business and one could visualize the situation where a trader goes from “how do I do this?” to “now let’s do it” in one go.

A practical example of this would be a trader wishing to import a commodity which may, from time to time, be subject to SPS measures. The first step would be to find out whether any measures are in place at the moment. The trader would therefore look up the commodity on the Trade Information Portal (as illustrated by the example in Section 5.4.3 above) and would discover that a specific permit needs to be obtained from the relevant agency before embarking on the importation.

At this point, if there were a shared link between the Trade Information Portal and the Single Window, the system could link together the steps required to discharge this obligation based on the enquiry that the trader has just submitted and present a workflow to the trader that will enable him or her to

submit the necessary applications electronically to the relevant agency/s via the Single Window without having to log out, re-log in on a different system and re-submit the same information. Furthermore, the tariff tables held on the Trade Information Portal could be used by the Single Window as the basis for the calculation of duties once the trader reaches the point where a Customs declaration can be lodged.

Clearly this model would require an intersection of technologies which should ideally be factored into the fundamental design of the systems at the onset<sup>1</sup> as well as operational arrangements which span different environments and this may not be practical in specific countries depending on local legacies or institutional constraints. It is, however, a model which is worth considering in countries where the conditions exist for a blue sky approach.

Perhaps the most important issue of relevance to the relationship between a Trade Information Portal and Single Window is the fact that, if one is undertaken before the other, it establishes a model for inter-agency collaboration and collective governance which is a common and essential prerequisite to the

success of both. The management structure, legal basis and mechanisms established to implement and manage the Trade Information Portal on an ongoing basis could easily be the foundation for the governance model of the Single Window and would make the model described above more attainable.

#### **Key Recommendations**

- Whilst a Trade Information Portal and a Single Window may be seen as separate projects requiring different legal, operational, technical and governance models, there are benefits to be derived from taking a holistic view of both and planning for this at the onset.
- Certain technology features can be shared to provide the user with a seamless and simplified process covering both the provision of information and the electronic submission of required data.
- The governance model for a Trade Information Portal, which is geared to enable inter-agency collaboration, could provide the foundation for the governance model of a Single Window.

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<sup>1</sup> Technically, this could be a web service call on a SOA platform and would require Single Sign-On

## Acronyms and Abbreviations

Acronym	Description
B2B	Business to Business
CMS	Content Management System
DBMS	Database Management System
DNS	Domain Name System
FAQ	Frequently Asked Questions
GATT	General Agreement on Tariffs and Trade
HMRC	UK's Her Majesty's Revenue and Customs
HS	Harmonized System
HTML	Hyper-Text Mark-up Language
ICT	Information and Communications Technology
IIS	Internet Information Services
IP	Internet Protocol
IS	Information Systems
IT	Information Technology
MOU	Memorandum of Understanding

Acronym	Description
OCR	Optical Character Recognition
PDF	Portable Document Format
PRINCE2	Projects in a Controlled Environment
SLA	Service Level Agreement
SMS	Short Message Service
SOA	Service Oriented Architecture
SPS	Sanitary and Phytosanitary
TBT	Technical Barriers to Trade
TRS	Time Release Study
UNCITRAL	United Nations Commission on International Trade Law
URL	Unique Resource Locator
WCO	World Customs Organization
WHO	World Health Organization
WTO	World Trade Organization



- 1 *GATT 1947 and 1994, Article X*, WTO
- 2 <http://www.iesingapore.gov.sg/wps/portal>
- 3 <http://www.nzte.govt.nz/Pages/default.aspx>
- 4 <http://nortrade.com>
- 5 <http://www.thaitrade.com/home>
- 6 <http://www.srilankabusiness.com/>
- 7 <http://www.tradeportalofindia.com>
- 8 <http://www.tradeindia.com/>
- 9 <http://www.legislation.govt.nz/>
- 10 W3Techs, *Usage of Content Management Systems for Websites*, [http://w3techs.com/technologies/overview/content\\_management/all](http://w3techs.com/technologies/overview/content_management/all)
- 11 *UKTradeInfo*, <https://www.uktradeinfo.com/index.cfm?task=terms>, HMRC
- 12 PRINCE2, *Projects In a Controlled Environment*, HM Government, <http://www.prince-official-site.com/>
- 13 W3Techs, *Usage of Operating Systems for Websites*, [http://w3techs.com/technologies/overview/operating\\_system/all](http://w3techs.com/technologies/overview/operating_system/all)
- 14 W3Techs, *Usage of Web Servers for Websites*, [http://w3techs.com/technologies/overview/web\\_server/all](http://w3techs.com/technologies/overview/web_server/all)
- 15 W3Techs, *Usage of Server-side Programming Languages for Websites*, [http://w3techs.com/technologies/overview/programming\\_language/all](http://w3techs.com/technologies/overview/programming_language/all)
- 16 Chen, P P, *The Entity Relationship Model – Towards a Unified View of Data*, ACM Transactions on Database Systems, Vol. 1, No. I, March 1976, Massachusetts Institute of Technology, <http://csc.lsu.edu/news/erd.pdf>
- 17 *GATT 1994, Agreement on the Application of Sanitary and Phytosanitary Measures*, Annex B, WTO
- 18 *GATT 1994, Agreement on Technical Barriers to Trade*, Article 10, WTO
- 19 <http://www.sps-tbt-ghana.org/>
- 20 <http://www.spsenquiry.gov.np/>
- 21 *Report of The Expert Meeting on Efficient Transport and Trade Facilitation to Improve Participation by Developing Countries in International Trade: Problems and Potential for the Application of Current Trade Facilitation Measures by Developing Countries*, UNCTAD, December 2002, [http://www.unctad.org/en/docs/c3em17d3\\_en.pdf](http://www.unctad.org/en/docs/c3em17d3_en.pdf)
- 22 Wilson J S, Mann C L, Otsuki T, *Trade Facilitation and Economic Development: Measuring the Impact*, World Bank Policy Research Working Paper 2988, March 2003, [http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2003/04/11/000094946\\_03040104075221/additional/126526322\\_20041117164059.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2003/04/11/000094946_03040104075221/additional/126526322_20041117164059.pdf)
- 23 UN/CEFACT *Recommendation No. 33, Recommendation and Guidelines on Establishing a Single Window*, UN, 2005
- 24 UNCITRAL, *Model Law on Electronic Commerce with Guide to Enactment*, 1996, United Nations, New York, 1999



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