

Introduction

Information and communication technology (ICT) is not just a fashionable trend soon to be forgotten.

The importance, development and application of this technology are increasingly reflected in day-to-day reality and in the management of activities in daily life, in and out of the office.

The revolution that has taken place and still is taking place in the field of telecommunications and information technology (IT) can be seen in the way people live, work, write, ask for and get information, or even think: business, education, health, social and cultural activities are some of the fields most affected by the introduction and use of these new tools called computers, e-mail and the Internet.

It is obvious that such a revolution affects and conditions the world of standardization too, forcing ISO and all the national standards bodies (NSBs) that make up its membership not only to accept this challenge, but also to get properly equipped in order to face it and to keep abreast of the times.

The decision taken by ISO to move rapidly to electronic operations – ISO Online, the ISO servers for accessing and exchanging information, the electronic balloting system and the Web-store – may be easily placed in this context.

Such a decision, however, cannot be restricted to the ISO Central Secretariat, it must necessarily be extended to all ISO member bodies, the NSBs, including those in developing countries, if they intend to maintain an effective presence in this new age and if – as the DEVCO Secretary once said – they do not want to risk missing the train to the future.

To work better and faster and to maintain contacts and relations between ISO and the developed countries are two of the main reasons why this decision has imperatively to be taken, bearing in mind that the current paper-based system, involving fax or ordinary mail, will be definitively phased out and fully replaced by an electronic one.

This explains the purpose of this Manual, which is to provide information, procedures and guidance on some practical instruments which may prove useful to the NSBs and which they need to ensure that they are properly equipped to make the most of what information and communication technology can provide to support standardization activities.

This means that functions other than standardization, e.g. systems for managing administration and sales, are not covered by this publication.



Target

This Manual is addressed to the national standards bodies of developing countries.



Objective

The objective of this Manual is:

- to create awareness of the strategic use of IT tools in the daily standardization activity of an NSB;
- to suggest the minimum set of IT tools and connectivity necessary for actively participating in the ISO system;

- to suggest the organization and working procedures needed to get the best out of the available set of IT tools and connectivity;
- to identify tasks that can be carried out more efficiently and profitably with IT support;
- to present the tools and opportunities offered by the ISO system to work and cooperate with the support of IT;
- to show actual examples of how to benefit from information services and working procedures made available by the ISO system via the Internet.

Results



With the help of this Manual, it will be possible to:

- identify the minimum set of IT tools and connectivity necessary for participating in the ISO system;
- set up the organization and working procedures needed to get the best out of the available set of IT tools and connectivity;
- use the tools and opportunities offered by the ISO system to work and cooperate with the support of IT.

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1. Structure and organization of the national standards body

This section is structured as follows:

- 1.1 NSB's structure and working units
- 1.2 The department(s) involved in standardization: roles and responsibilities
- 1.3 Tasks



Objective

The objective of this section is:

- to illustrate the working organization (structure, hierarchical and functional links) of a national standards body, focusing on the units directly involved in the standardization activity;
- to illustrate the specific functions of each department of that organization;
- to illustrate the tasks to be carried out within each department.



Results

After working through this section, it will be possible to:

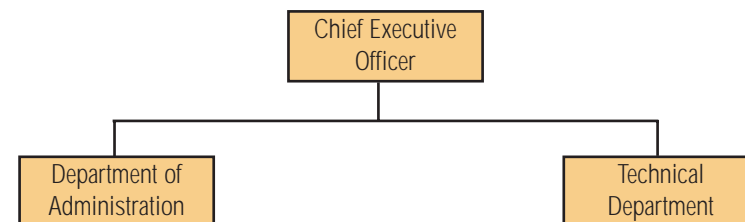
- rationalize the organizational structure and internal relations according to the model proposed;
- define the functions and responsibilities of each department;
- define a job description for each person.

1.1 NSB's structure and working units

The successful operation of an NSB depends on its organization and management. It has to be organized with the aim of integrating its activities into those of its national industry and other stakeholders. It should identify national needs and organize its structure so as to ensure the greatest possible contribution towards the nation's economic and industrial development¹.

The standards body should be well organized to perform its functions effectively. The two broad divisions into which the organization may be broken down are:

- a) a department of administration, taking care of the support services such as secretarial, accounting, financial management, legal, personnel, public relations, library and sales services;
- b) a technical department, taking care of the standardization activity.



Considering the objective of this Manual, attention will be focused on the latter, and particularly on the standards development function. The technical department, with its supporting technical committees, is responsible for the standards development work of the NSB, both at national and at international

¹ ISO Development Manual 1, *Establishment and management of a national standards body*

levels. Standardization at national level implies the publication and availability of national standards, while standardization as an international activity consists of participation in ISO's technical activities.



It is advisable to organize the standardization activity according to different branches, each corresponding to a specific macro-sector of standardization. Which branches or departments are to be established in the early years of the NSB will clearly depend on national priority needs. As national standardization needs increase, new departments may be created to cater for the consequential increases in the work load².



A useful reference may be represented by the macro-sectors identified by ISO itself for monitoring and coordinating its own activities. They are: Generalities, infrastructures and sciences; Health, safety and environment; Engineering technologies; Electronics, information technology and telecommunications; Transport and distribution of goods; Agriculture and food technology; Materials technologies; Construction; Special technologies.

Each branch (person/office) will involve, and work in cooperation with, external sectoral experts who will lead the standardization activity according to the market needs.



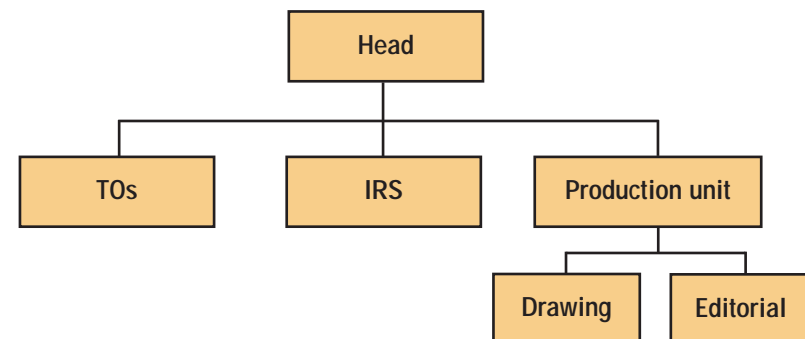
The creation of "sectoral strategic groups" – open to external experts such as top management, public administrators – is essential for the effectiveness of the standardization activity; such groups help the NSB to take into consideration and reflect market needs and expectations. Each branch (person/office) within the NSB can resort to the strategic group competent for the sector in order to receive guidance and orientation.

²ISO Development Manual 1, *Establishment and management of a national standards body*

Following the strategic group's suggestions, each branch will finalize its work programme or business plan, always bearing in mind the possible availability of international standards on the subject.

1.2 The department(s) involved in standardization: roles and responsibilities

The technical department structure is obviously dependent upon the volume and complexity of the standardization activity carried out at national and international levels. In principle, it is possible to identify a "model" structure, bearing in mind, however, that each NSB will have to adapt it according to its range of activities, needs and priorities:



- ❑ the Head,
- ❑ Technical Officers (TO) grouped according to different sectoral branches,
- ❑ International Relations Service (IRS),
- ❑ Production Unit, which can be structured into different sub-sections (e.g. Drawing (CAD) office and Editorial office), according to the volume and complexity of the activity carried out.

The Head

Regardless of the number of people involved in the technical department, this needs to be led by a Head, reporting directly to the Chief Executive Officer.

The Technical Officers

The key contribution to the standards development and/or standards writing work of the NSB is that of its technical committees.



The membership of each committee should include representation of parties interested or involved in its field of operations, namely: producers, users and consumers, research organizations, government departments, educational authorities, individual experts³.

Technical committees are set up by a managing body on the advice of the Head of the technical department, supported by a panel of experts, their mode of operation being governed by rules fixed by the Council. The Head of the technical department supervises the work carried out by the technical committees.

In the past few years, the process of globalization has led to a considerable growth in the importance of international standards and their primacy over national and regional standards. Most industrialized countries and many developing countries are now aligning their standards with international ones to achieve competitiveness in world markets. It is now generally accepted that establishing national standards that differ substantially from the corresponding international standards is not a policy that can be sustained over the long term.

³ISO Development Manual 1, *Establishment and management of a national standards body*

Most of those countries have restructured their national technical committees (TCs) in line with international TCs (of ISO, IEC, OIML, etc.). The figure on pages 12 and 13 shows the relationship between ISO technical committees and the national "mirror" committees.

The national TCs have the key task of following up international standardization work in their field of activity, participating actively in that work by consulting national stakeholders (manufacturers, users, professionals and the Government), formulating the national viewpoint and voting on draft international standards, then promoting their national implementation. In this way, close cooperation and synergy are established between the international standardization work taking place in the international TCs and national standardization taking place in the national "mirror" committees.

In practice, this cooperation materializes through the involvement of the leadership of the national TCs (chairpersons, secretaries and leading members) which needs to be coordinated by, and channelled through, the International Relations Service (IRS). Those leaders are often the delegates of their countries to the International TC meetings. (For more information, see ISO Development Manual 6, *Participation in international standardization*).

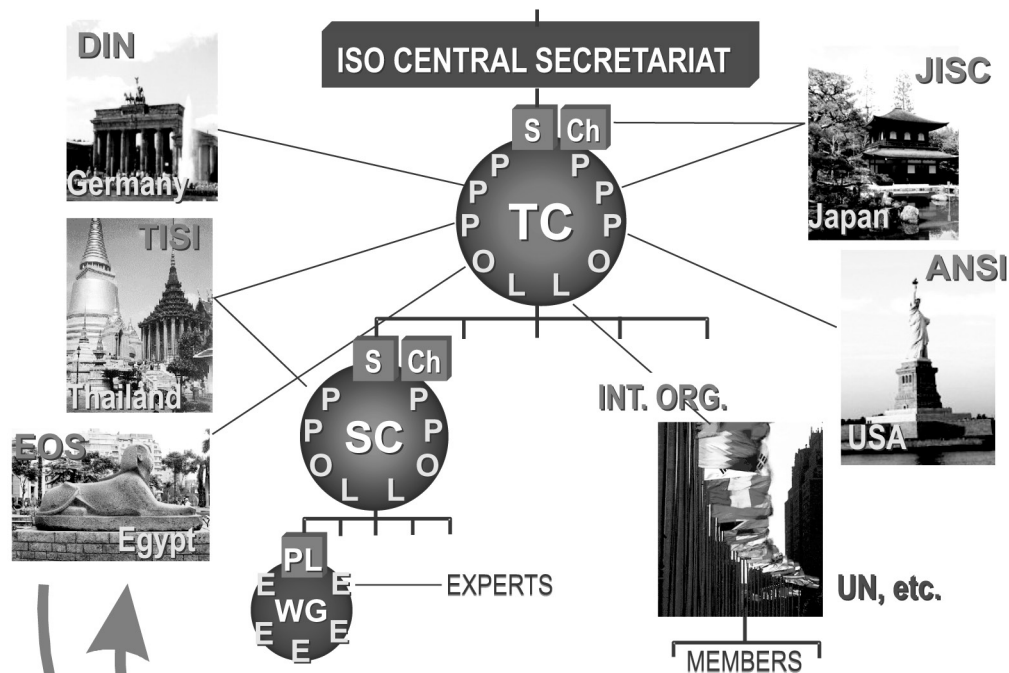
The activity of each technical committee is led and coordinated by a Technical Officer, who is an employee of the NSB.

A Technical Officer can handle several different technical committees, possibly belonging to the same branch. Each Technical Officer reports to the Head of the technical department.

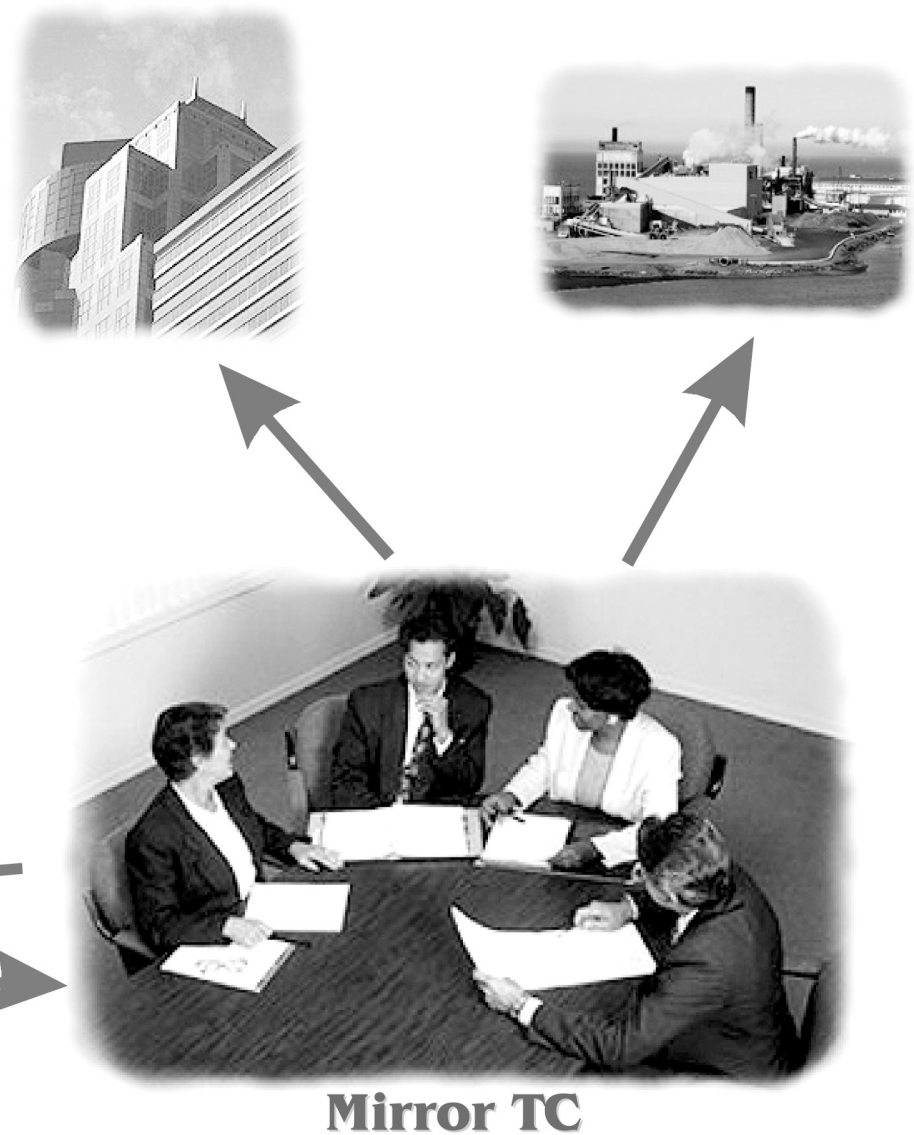


Relationship between an ISO technical

committee and a national mirror committee



P = Participating members
O = Observers
L = Liaison status



The Technical Officer's main responsibilities are as follows:

- to monitor the standardization process at national and international level, keeping track of it;
- to circulate documentation, while collecting and delivering national comments to the requisite site or individuals;
- to offer technical assistance (information on standards and related subjects to enterprises via telephone, e-mail, etc.).

The Technical Officer may be supported by a secretary, whose functions are:

- to support the Technical Officer in the registration and monitoring of the important steps of the standardization process;
- to support the Technical Officer in the circulation of documents and in all general secretarial activities.

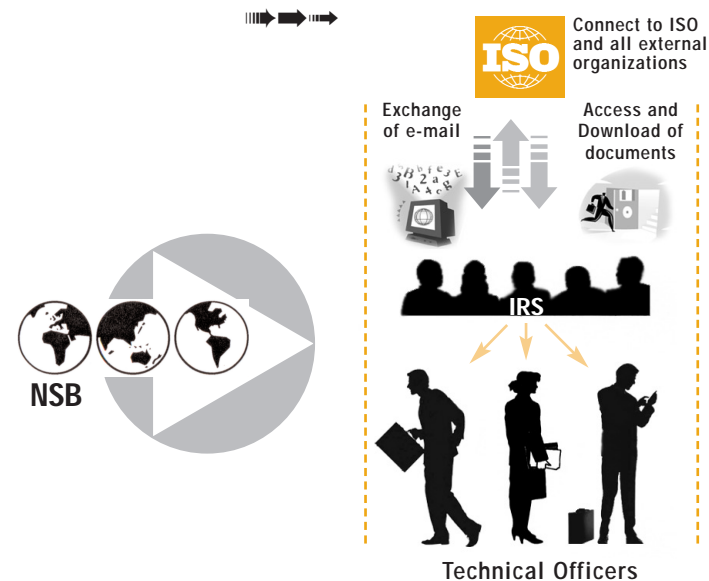
The International Relations Service

Within the technical department it is necessary to designate a person/office in charge of interfacing with ISO and its information system⁴.



This function can be carried out by a single Coordinating Unit directly reporting to the Head, or, in more sophisticated structures, it may be useful to consider a decentralized function operating in each branch.

This function will be referred to hereinafter as the "International Relations Service" (IRS). Its role is to interface with ISO and other NSBs, taking care of any incoming and outgoing correspondence. This implies being responsible for the administration and for the distribution of documents within the organization itself.



The institutional task of the IRS is that of dealing with the distribution of Draft International Standards (ISO/DIS) and Final Draft International Standards (ISO/FDIS) and of collecting and returning to the ISO Central Secretariat (ISO/CS) the voting forms and comments, if any, on such documents expressed at national level.

The IRS works in close cooperation with each Technical Officer. The IRS has to convey to the competent Technical Officer the incoming mail, and the Technical Officer should circulate the documentation within his/her technical committee, collecting any feedback and then transmitting a national position in time to the IRS, for the latter to convey an official national vote to the ISO Central Secretariat (ISO/CS).

The IRS is to do the same with general mail. One of the tasks of this department is to monitor and check any incoming mail both from ISO and from all the other national standard bodies.

⁴ It has to be borne in mind that the way of interfacing with ISO and its information system depends on the type of membership enjoyed by the member/user: member bodies, correspondent members, subscriber members. For more information, see "ISO members worldwide" www.iso.ch/adresse.html

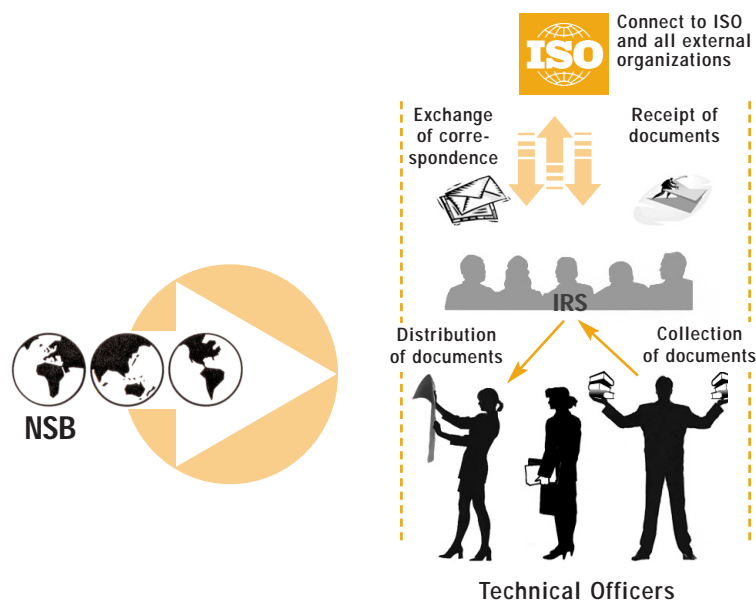


The mail coming from ISO consists of the circular letters (policy and general) on general matters regarding, e.g. ISO publications, marketing, or overall communications about members (fee payment, suspension, admission).

All communications with ISO through the Central Secretariat in Geneva are today operated by computerized services and will be increasingly based on them.

In the following chapters (in particular 2 and 4) these aspects will be considered in detail.

Meanwhile, it is sufficient to say that the IRS should download all such correspondence, print and distribute or simply forward it (assuming all the interested parties are equipped with e-mail) to those concerned in order to disseminate the relevant information, and file it in different folders according to the subject-matter covered. A "default" structure illustrated in Annex IV is proposed for implementation.



Moreover, there are other types of letters or communications from or concerning the ISO governance bodies (Council, TMB, DEVCO, etc.) for which an official staff appointment is required. This case needs to be handled differently and is explained in more detail in Chapter 4.

Production Unit

The Drawing office

The Drawing office has the task of reproducing drawings of any international/foreign standard, whenever such a document is endorsed as a national standard and, if necessary, translated into the national language.

A repository of drawings in electronic form is available on the ISO servers and can be used to support this activity.

The Editorial office

This unit has two main tasks: editing the text for the development of any national standards or for the adoption of an ISO standard, and editing a draft standard in cases where an NSB is allocated the secretariat of an ISO TC, SC or WG.

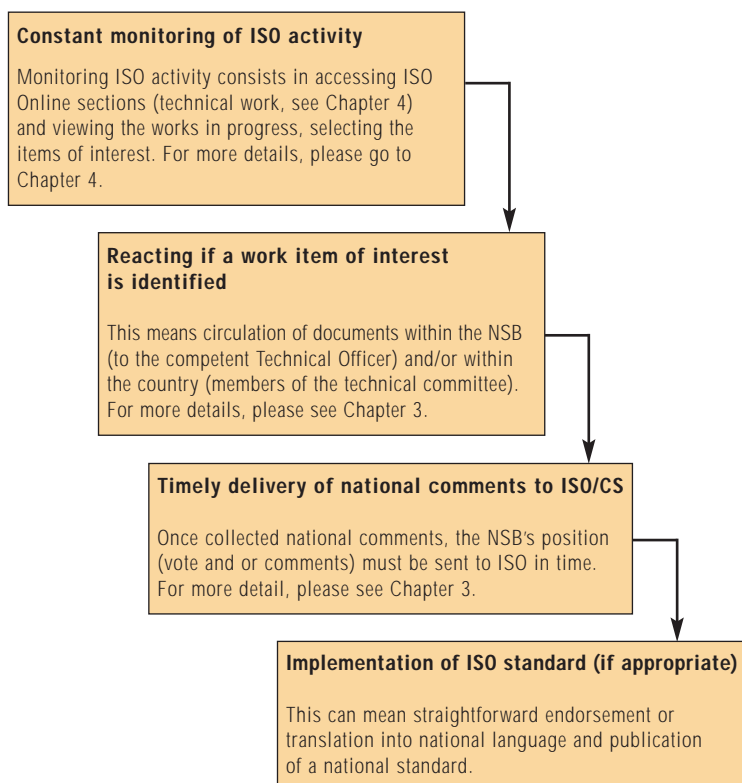
In the first case, when a national standard is taken from an ISO standard and translated into the national language, it may prove useful to download the original file of the standard from the ISO Publications Files (ISOSTD on ISO Online). The file is available in revisable format (Word) and can be over-written to produce the national standard.

In the second case, the ISO Online Web site, under "For standards developers – Guiding principles, support, training and

IT tools (SDIS)", supplies the user with all the instructions needed for drafting a standard according to the ISO rules. The ISO Directives, Part 2, as well as the ISO template are the main tools to be used in this case. See Chapter 4 for more details.

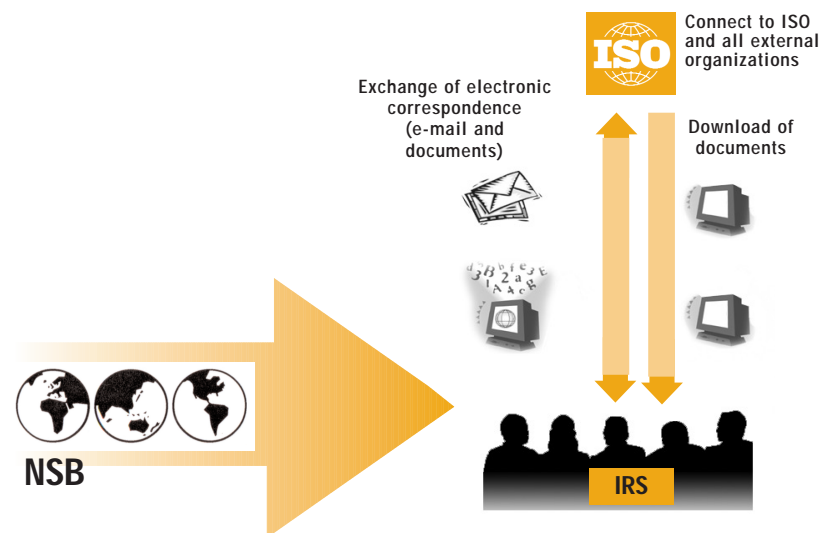
1.3 Tasks

Participating in the standardization process at international level implies carrying out the following tasks:



Up to the end of 2001, ISO will continue to send letters and documents to its members in both electronic and paper form, thus ensuring that all NSBs receive information and documen-

tation from the ISO/CS concerning the activities of those TCs of which they are members. But beware: paper will soon become obsolete! In fact, as approved by the ISO General Assembly in 2000 (Resolution GA 05/2000), ISO will move to electronic-only distribution of DIS and FDIS starting January 2002 and will (tentatively) introduce electronic-only distribution of all ISO standards in January 2004.



While the collection of information from ISO will require the Internet, the following step – that is, the distribution at national level – can be carried out using electronic or traditional communication methods (mail, fax). It is advisable to use the Internet and e-mail whenever possible, resorting to traditional communication only when no other means is available.



There should be well-defined procedures covering all stages in the circulation of documents, including the registration of incoming and outgoing mail, as well as their dates and deadlines.

Should e-mail be used, it will be necessary to manage e-mail communication. If only one workstation is connected to the Internet, the operator (IRS) will be in charge of checking all incoming mail, printing it and distributing it to the competent person/office. Or, better, if other workstations are available in a local area network, the operator (IRS) will check the incoming mail and then forward it electronically to the competent person/office. Should more than one workstations be connected, it is advisable that every sector/branch be equipped with its own workstation with access to the Internet.

If an ISO standard is relevant to the national economy, it can be considered for implementation as a national standard (this is optional, not mandatory).

The endorsement of an international standard can take different forms: simply with a cover page bearing the NSB's logo attached to the original ISO standard itself, or as a translation into the national language. In this case, the national standards body is responsible for the accuracy of the content.



It is important to select national experts having a good knowledge of the original language of the international standard (usually English or French), so that they can undertake the translation into their national language. Otherwise, both editorial and translation services (in-house and/or outside) have to be arranged.

2. IT infrastructure

This section is structured as follows:

- 2.1** Overview of IT development in the NSBs
- 2.2** Working procedures and IT – A step-by-step approach
- 2.3** Improvements

Objective



- to classify and describe the different development levels of the NSBs as regards IT infrastructures;
- to identify, for each development stage, the functions and procedures which can be supported by IT;
- to suggest possible improvements in the organization and in the procedures on the basis of the given tools and connectivity.

Results



After working through this section, it will be possible to:

- place the organization within the general framework according to the development stage illustrated;
- identify the functions and the procedures which can be supported by IT;
- identify areas of improvement, on the basis of the given tools and level of connectivity.

2.1 Overview of IT development in the NSBs

In order to respond to the requirements of industry and the market, national standards organizations need to implement modern methods of work, including in the area of communications. As a result, they are gradually moving towards electronic work methods, where the Internet plays a basic part, and are abandoning the use of paper.

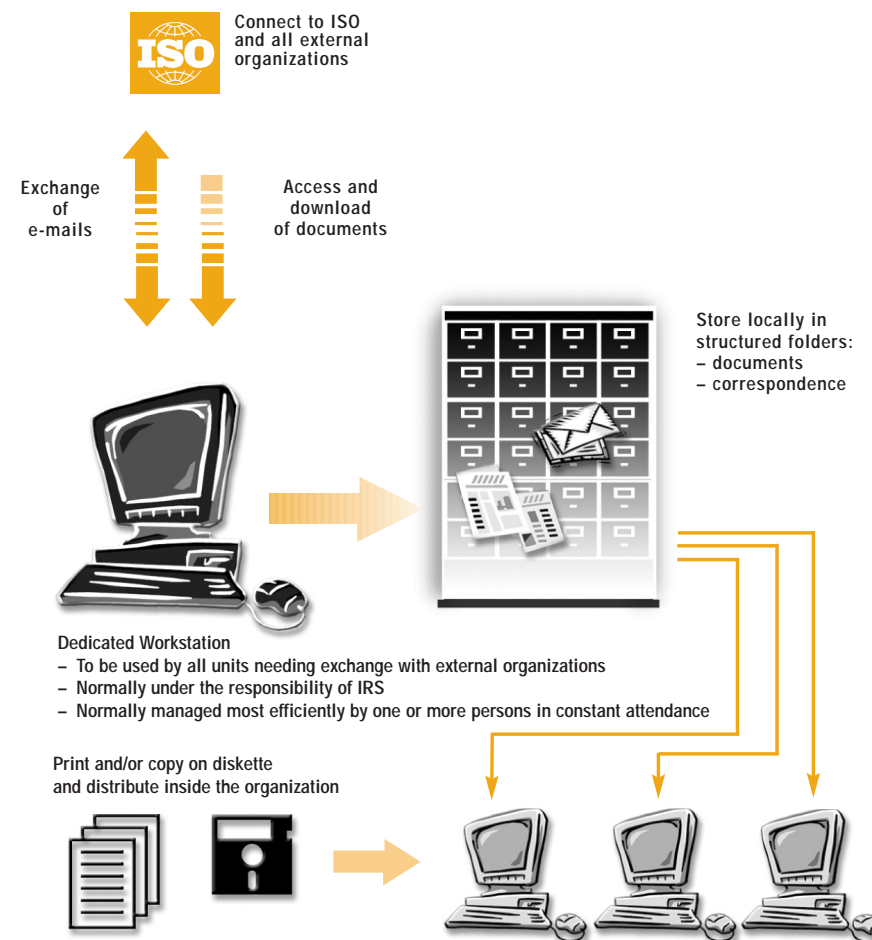
The availability of computer-based resources and Wide Area Networks varies enormously amongst the members of the standards community, from those without any access to computers, through groups and individuals who have access to the most sophisticated systems and software currently in existence.

As regards Internet access, three different levels of connectivity have been identified within the standardization community worldwide (see Annex V):

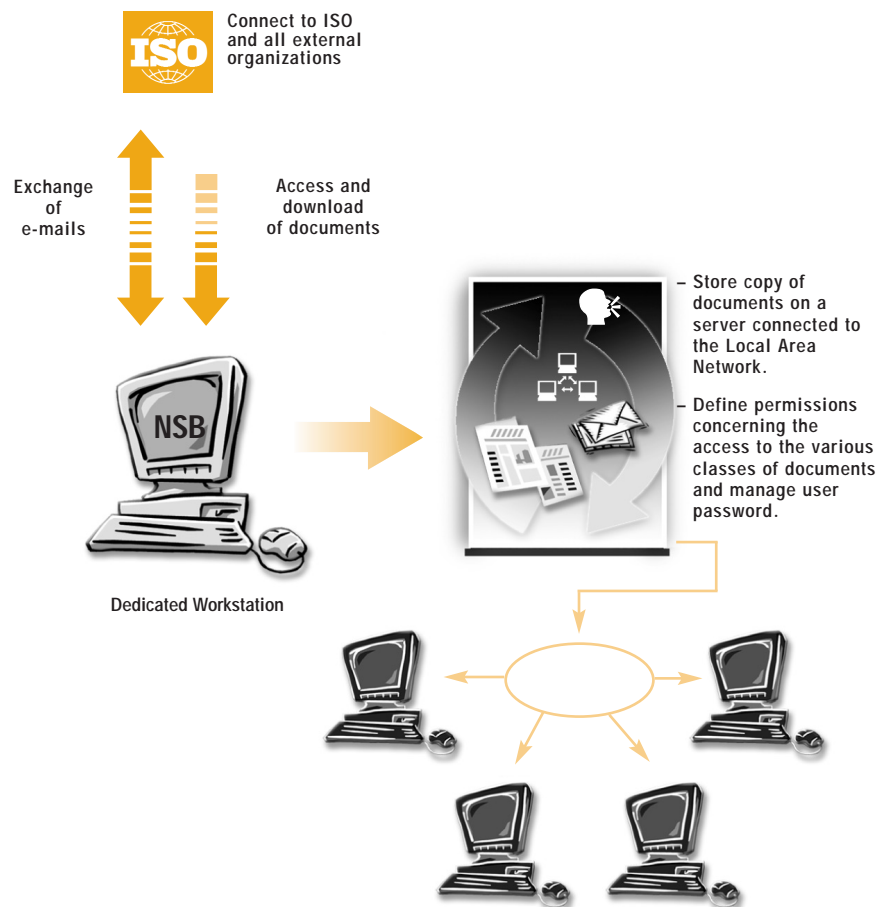
- 1) one PC connected to the Internet through a dial-up connection and stand-alone PCs used by staff members;
- 2) a Local Area Network integrating several PCs, but only one PC with access to the Internet through a dial-up connection;
- 3) all workstations integrated into a local area network where each workstation has direct access to the Internet via router.

Irrespective of the level reached, the IT resources available can play an important role in supporting and facilitating daily activity, improving efficiency and effectiveness of work. Given a certain infrastructure, an organization can adopt specific procedures to optimize its activity.

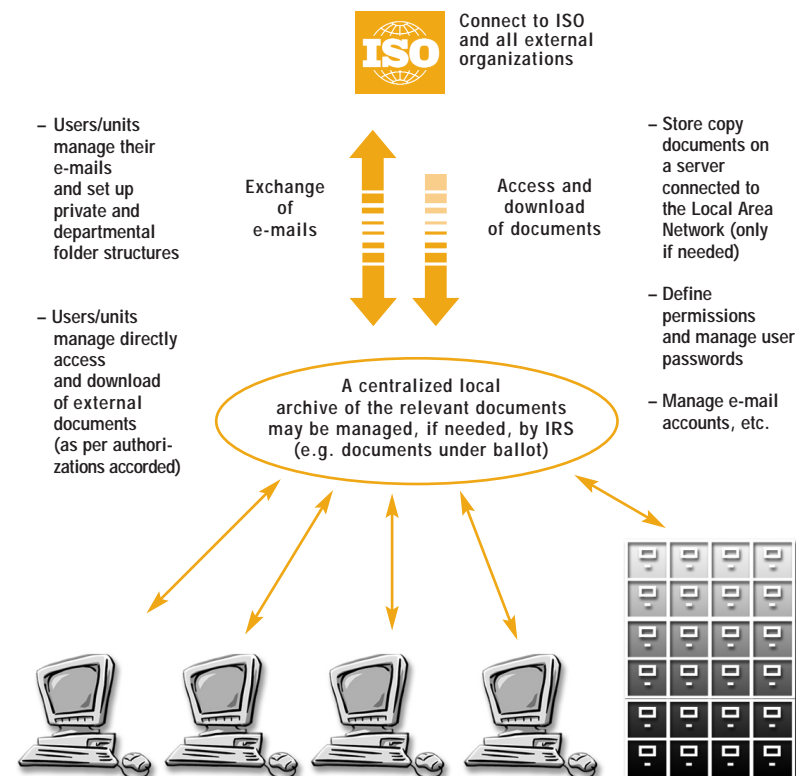
At level one (one workstation connected to the Internet through a dial-up connection and one or a few stand-alone PCs), the PC connected to the Internet is a sort of "advanced telefax": its role is limited to dialoguing with the rest of the world, but its output for the standardization community of the country must be distributed on paper.



At level 2 (one PC connected to the Internet via dial-up integrated in a Local Area Network), the PC connected serves as a "bridge" with the rest of the world, channelling the outgoing and incoming flows of information.



At level 3, each workstation has direct access to the Internet.



2.2 Working procedures and IT A step-by-step approach

The first PC

The implementation of IT in a standards developing organization starts from the acquisition of the first PC, used as a stand-alone machine.

For a detailed suggestion on the equipment of a PC, please refer to Annex D of the ITSIG Guide for the use of IT in the development and delivery of standards.



The first PC connected to the Web

When there is only one PC connected to the Internet, such a precious, unique resource must be made available to all staff members needing it, thus "multiplying" its positive effects.

This PC must fulfil two functions:

- access to the Internet and download of documents relevant to various kinds of activities;
- exchange of correspondence by e-mail.

Configuration requirements	The PC could, as a minimum, be configured with an operating system, e.g. Windows NT (usually provided with a PC when purchased), a virus protection application, e.g. Virus Scan. Besides, the PC must be equipped with a browser (MS Internet Explorer or Netscape Navigator), an e-mail application, e.g. Netscape Messenger, MS Outlook, and a database application such as MS Access. A CD-writer is necessary for regular backing up of the hard-disk.
Use suggestions	Working shifts could be organized, to allow each person time enough to carry out his/her work via the Web. In order to monitor and manage the incoming and outgoing e-mail correspondence, a single person/office (normally the International Relations Service) should be in charge of registering and distributing all incoming mails and registering and sending all outgoing mails. In case the workstations are not connected in a local area network, the IRS will have to print and physically distribute all correspondence. In case of a Local Area Network, the IRS will be able to distribute all documents and correspondence electronically, at least within the organization.
Practical tips	Scan all magnetic diskettes inserted in the drive with an antivirus ! A CD-writer should be connected to the PC for back-up (see archiving policy, Annex IV).

A few stand-alone PCs

At the basic stage, there is normally a PC connected to the Internet and a few stand-alone PCs. Such stand-alone PCs can be used for the production of national standards and for office work support. An example of PC configuration for production could be: Windows NT, Virus Scan, MS Office. Also, in case of stand-alone PCs, one or more CD-writers could be shared for the back-up of all PCs. Jaz or Zip systems may also be used for the back-up.

Two PCs connected to the Internet

In the case of two PCs connected to the Internet, it is advisable to devote each PC to a specific function, according to the needs and priority of use. For example: it is advisable to devote one PC to balloting procedures, while making the other PC available for general browsing, exchange of documents and e-mail communications.



Developments

To support the creation and easy management of the electronic archiving of documents and correspondence, ISO has developed a model file structure, together with a model architecture (template) for a Web site. See the CD-ROM of this Manual.

In Annex IV a pre-defined folder structure is proposed:

- for the e-mail environment (to facilitate the filing and archiving of messages, received and sent), and
- for documents, to facilitate the filing, archiving and retrieval of documents exchanged with ISO and other organizations.

These folders are organized reflecting, where relevant, the structures of the folders available on the ISO Web site and should help to manage:

- the official communications to and from the ISO Central Secretariat (circular letters and documents issued by ISO governance bodies)
- participation in the ISO balloting process (TC folders, links to the relevant sections of the "For standards developers" section of ISO Online, etc.).

The way these systems are used will vary according to the different levels of IT infrastructures available.

According to a survey of IT infrastructures and levels of connectivity in NSBs of Mediterranean developing countries (see Annex V), most organizations have a basic level of connectivity, but are engaged in reaching level 2. To support and facilitate this process, ISO – within the Mediterranean 2000 project – provides NSBs of the Mediterranean developing countries with assistance and equipment that can help their respective NSBs to improve their capabilities to access and exchange information (in particular at the international level), and to offer services to their users' base – notably small and medium-sized enterprises.

ISO is providing the following equipment to beneficiaries of the Mediterranean 2000 project:

- one system configured (with appropriate hardware and software) to operate as a Web server for the organization;
- one additional server to be used as a "gateway" to exchange information, and as a structured repository for documents and messages exchanged with organizations belonging to the standardization community.

The step-by-step approach in implementing IT solutions (hardware and software) must be followed also taking into account individual attitudes and involvement in IT tools and working procedures. Motivation and training are the two keywords.



The work of an organization applying IT should be organized in such a way that staff members have access to as much information as possible. This does not mean that staff members should be flooded with information but it does mean that staff members should have access to information at any time when the necessity arises without additional procedures requiring actions by other staff members.

Before starting to use IT applications, staff members concerned should undergo training. There should not be a break between training and its application at the workplace, or people will tend to forget their training, and the resources spent on the training will be partially lost. Training can be conducted by internal staff members or by external companies. Training by internal staff is preferable as it is less expensive, easier to

organize, better adjusted to the organization's needs and business process.

It is crucial that the CEO is well aware of the importance of the use of IT applications in supporting standardization activity at different levels. The CEO should have a clear understanding of IT possibilities for achieving greater efficiency and quality of work; belief in the necessity of IT implementation; confidence in the fact that the application of IT is not as difficult as it may seem at first.

2.3 Improvements in procedures



Save and Download

Usually a PC dial-up connection does not have a high data transmission capacity. It is therefore recommended that the staff members save documents received or download the appropriate documents from Web sites onto the hard disk, and use the PC mainly for receiving and downloading new documents. It should not, as a rule, be used for repetitive consultation of the document repositories of other organizations, although some consultation should not be completely excluded.



Circulate

All correspondence and documents relevant to the organization which have been received or downloaded during the day should be printed (or copied on a diskette) by organizations at level 1, or copied on a server on the Local Area Network (LAN) by organizations at level 2 and, if needed, at level 3, and circulated to the appropriate staff member(s) for follow-up actions and information.

The documents, including e-mail, saved or downloaded onto the hard disk, should be properly filed in directories, folders and subfolders. Staff members should be aware of the filing system. When the need arises, the staff members concerned may consult the documents on the PC or print them. For the sake of consistency, it may be useful to refer to the folder architecture suggested by ISO (see Annex IV).



File



Back up

Paper is a fairly secure medium for documents. Only fire or flooding present a threat for paper documents. Electronic media are more vulnerable: the hard disk or computer may fail and the data are lost; wrong manipulation of an application or use of an application containing bugs may delete or corrupt data; failure of the electrical supply system or magnetic interference may lead to a loss of data; a computer virus may also corrupt or completely destroy data; and even an upgrade or change in the software application can create considerable difficulties in retrieving data. It is very important, therefore, to establish an archiving policy in the organization right from the beginning of IT implementation. (See details on archiving policy in Annex IV).

It is very important to have installed an anti-virus application which protects data from damage by computer viruses. There are many anti-virus programs on the market; some of them are bundled in software packages with other programs or operating systems. An example of an anti-virus program could be VirusScan by Network Associates.



**Protect
against
virus**

3. IT-based activities

This section is structured as follows:

- 3.1 Introduction
- 3.2 Office work support
- 3.3 Management of national standards development activities
- 3.4 Participation in international standardization
- 3.5 Access to ISO information and participation in ISO activities via the Internet
- 3.6 Dissemination of information on standardization matters

Objective



The objective of this section is to illustrate:

- the main and most suitable IT-based applications supporting the standardization activity;
- how daily activities can be improved with the support of IT;
- how the exchange of information with ISO and the other NSBs can be improved with the support of IT.

Results



After working through this section, it will be possible to:

- become familiar with the main and most suitable IT-based applications;
- identify ways for improving daily activity with the support of IT;
- activate effective channels of communication with ISO and other NSBs with the support of IT.

3.1 Introduction

In Chapter 1, we identified and illustrated the different functions and tasks of an NSB's technical department.

Before IT tools were broadly available, such activities were carried out using typewriters, telephones, and ordinary paper mail, to which faxes were added later.

The introduction of IT tools in daily activity has completely changed working procedures, and even the workload of each function: if sending 10 faxes of a few pages each could mean half an hour of work, nowadays sending the same documents via e-mail can take not more than five minutes.

3.2 Office work support

Under this heading we mean support to general, horizontal activities relevant to each department and function. This involves the preparation of various working documents, correspondence (letters, faxes, e-mails), reports, statistics, etc. which serve in general for administration and management of organizations, for coordination of work on the development of standards, etc.

The most widespread applications used for this purpose among the ISO members are text processing applications, e.g. MS Word, and spreadsheets, e.g. MS Excel; MS PowerPoint is also widely used for preparing and delivering presentations at seminars, conferences, workshops, meetings, etc. Further technical details about the use of such tools are given in Annex I.

E-mail applications, e.g. Netscape messenger, MS Outlook, as well as Internet browsers, e.g. MS Internet Explorer and Netscape Navigator, are now necessary tools for participating in standardization activity. In the following chapter, the role that such tools play in fostering participation in international standardization activities will be explained. Further details on technical aspects of e-mail applications and browsers are given in Annex I.

Production of national standards and related publications involves the use of text-processing applications (e.g. MS Word). It should be noted that the use of MS Word for publishing standards requires deep knowledge of the tool and specific skills; however, a basic knowledge is sufficient for text editing and general office work support. Professional document production involves more sophisticated applications, e.g. Adobe FrameMaker. Technical drawings and other graphical elements included in standards are produced with the use of such applications as CorelDraw, Adobe Illustrator or the more sophisticated AutoCAD.

3.3 Management of national standards development activities

The management of national standards development activities implies the ability to archive, manage and retrieve data and information: project development stages, references of experts participating in national standardization work, references of published standards and other products for sale.

There are three main categories of IT systems used by NSBs to support standards development activities. The complexity of

the tools used and of the solutions implemented varies with the size and the level of development/expertise of the organization. These three categories of IT systems include:

1) Document management systems: these provide basic or advanced features for archiving and retrieving documents. The traditional systems consist ONLY of paper folders, where paper documents are normally stored and retrieved when needed. Electronic systems typically supplement or even replace paper archives, and can vary from the simplest solution of a mere archiving policy based on structured folders built directly on the file system (e.g. folder structure on Windows 2000, as presented in Annex IV), to extremely sophisticated solutions based on specialized IT products (such as Livelink from Opentext) implemented by some NSBs.

2) Database systems: these are for managing data related to:

- projects (i.e. TC work items and related development stages);
- experts (persons participating in projects, with description of their roles);
- products (i.e. the publications delivered at the end of the development cycle, in particular National Standards). In the traditional systems, all these data are managed on paper, typically keeping REGISTRIES for the various entities considered (e.g. the REGISTER of projects, the REGISTER of experts and the CATALOGUE of products). These data are, however, most effectively managed through the use of database management systems (DBMS). Most ISO member bodies today use database systems. Available products

range from the basic MS Access, to the more sophisticated Oracle.

3) Specific applications: these are typically based on tools supporting automated workflows and collaborative work. The new ISO balloting system is an example of the application of "process automation" and will be illustrated in Chapter 4.

The archiving policy should clearly indicate:

- which documents should be printed and kept in paper form and which documents should be safeguarded in electronic form (electronic archiving is strongly recommended for large volume documents which are regularly revised, since it saves resources);
- the retention period of different types of documents;
- the formats and media which should be used for archiving purposes (the image-based PDF format is more reliable from the legacy point of view for archiving purposes, while it is not suitable for documents which are regularly revised they should at least be kept in text processing format; the media could be CD-ROM or Jaz cartridges);
- the frequency of back-ups;
- terms of access (passwords);
- periodicity for selective examination of electronic files.



Currently, most standardizing bodies use database applications (chosen from among the different available solutions, varying from the basic MS Access to the more sophisticated

Oracle) to assist in the management of the standards development process. Further technical details are given in Annex I.



Databases are extremely useful also for daily secretarial activity: it is advisable to manage a database with the names and references of all technical experts taking part in the NSB's activity. If possible, the management of this database should be centralized, in order to avoid discrepancies or overlapping information. The database should be made available (for consultation only) via a LAN (Local Area Network), where this is available.

3.4 Participation in international standardization

Participation in international standardization with application of IT tools mainly implies the use of software for office work support, an Internet connection, a browser (e.g. Netscape or MS Internet Explorer), an e-mail application (e.g. Netscape messenger, MS Outlook) and Adobe Acrobat Reader, the application which is used for reading PDF (non-revisable) format documents and is freely available in the market⁵. Such software is sufficient for members of national organizations to effectively support their participation in international activities.

Additional software is normally deployed at the headquarters of international organizations. Such software usually provides remote access for multiple users and groups of users via the Internet (e.g. Livelink DMS⁶).

Electronic mail has brought about a revolution in our way of communicating. The advantage of e-mail communication compared to more traditional ways (e.g. fax) is in terms of time, efficiency and costs. Compared to telephone calls, e-mail communication has another important advantage: the possibility of easily keeping in touch with another person in spite of time zone differences and the person's availability. Far less intrusive than a phone call, an e-mail message can be read and dealt with at the recipient's convenience, according to the message's level of urgency, thus optimizing his/her time schedule.

Documents can be sent by e-mail as an "attachment". A message with attached documents should include a list of the attached documents, notably their filenames, their formats, the method of encoding used, and the order of the attachments. The total size of the attached document should be kept to a minimum. The reason is that some mail servers may reject the delivery of overly large e-mail. However, the simplest solution when dealing with large documents is to avoid using attachments altogether and to put the documents on an FTP or Web server for retrieval by the recipient. For more information, see the ITSIG Guide that can be downloaded via ISO Online (use site search on "ITSIG Guide").

⁵ www.adobe.com

⁶ It is useful to underline here that using a Document Management System such as Livelink is very different from IMPLEMENTING and MAINTAINING such a system. In the first case, only an Internet browser is required to access all the functions and to execute tasks. In the second case, a complex infrastructure (a combination of hardware, software, network) needs to be set up. This, of course, has a deep impact on the resources needed to manage such an environment.

3.5 Access to ISO information and participation in ISO activities via the Internet

Nowadays, the prime source of information for administrative and technical reference material is the Web site of each of the international standardization organizations.

This information is available at the following Web sites:

ISO – International Organization for Standardization: www.iso.ch

IEC – International Electrotechnical Commission: www.iec.ch

ITU – International Telecommunication Union: www.itu.int.

WSSN – World Standards Services Network⁷: www.wssn.net

You need at least one PC connected to the Internet and a browser to navigate.

The information and documentation system of the ISO Central Secretariat, which provides direct access to ISO information and electronic participation in ISO activities, is composed of four parts, serving ISO members and/or the general public: ISO Online, ISODOC server, ISOSTD server and ISOTC server. ISODOC and ISOSTD are for ISO members only. Information on password-protected sites is given under "For ISO members" and "For standards developers". Other parts used only by the ISO Central Secretariat are not the subject of these guidelines. The following conditions should be met for accessing information and documents in the system:

- to be linked to the Internet,
- to have a Web browser installed, e.g. Netscape, MS Internet Explorer, etc.,
- to have Adobe Acrobat Reader installed for reading PDF files.

Further details on how to access ISO information via the Internet are given in Chapter 4.

⁷WSSN is a Web site representing a collaboration between these organizations and their membership with the purpose of providing links to all the organizations active in standardization.

3.6 Dissemination of information on standardization and related matters

Every day, an NSB receives from a few to hundreds of queries on standards and draft standards; a good way of optimizing the management of such enquiries is to create a list of frequently asked questions, making it available on a Web site. The Web site⁸ can be seen as an excellent tool for communicating technical information to the standardization community of the country and to the general public.

This includes creation and maintenance of electronic information and sales services via the Internet with the application of Web technology. Creation and maintenance of electronic information services normally implies the use of software for developing HTML pages for Web sites (e.g. MS FrontPage, Netscape Composer) and for databases (e.g. MS Access, Oracle). Browsers (e.g. Netscape, MS Internet Explorer) are widely used as software for navigating the information stored on Web servers. The application of electronic ordering, invoicing, payment and delivery requires more sophisticated products with a considerable amount of resources and programming knowledge involved.

It is not effective to create a Web site on a PC connected to the Internet via a dial-up connection. However, today it is important to provide national and foreign customers with information on national standardization and to link them to the WSSN via the Internet. Therefore, it is recommended that standards organizations without a connection to a leased line find a sponsor organization that has a server and a connection to the Internet via a leased line. It could be a Ministry supervising the standards organization, another governmental or private organization that deals with trade promotion or information or documentation dissemination or some other organization.



⁸This of course depends on the degree of availability and use of the Internet in a given country. However, even if the penetration of the Internet is currently low, it is expected to increase dramatically in the next few years also in the least developed countries.

There is also the option of renting space on a server on a commercial basis. There are a number of companies, usually known as Internet Service Providers (ISP), that provide such a service for a moderate fee. Such a company may be found in the country of the standards organization concerned or even abroad.

Once the question of a sponsor organization or a commercial Internet Service Provider has been resolved, the standards organization may start to develop its own Web site. Files with the Web site content can be prepared on a PC installed with a Web authoring tool and a database application, e.g. MS FrontPage and MS Access.

General recommendations on the application of IT for designing Web sites are given in Chapter 7 "Establishing World Wide Web sites and services" of the ITSIG⁹, *Guide for the use of IT in the development and delivery of standards* (3rd edition). The Guide is available on ISO Online and is downloadable. The best path to follow is to use the site search on ISO Online, and ask for "ITSIG Guide".

Recommendations on the content of a standards organization's Web site are given in document ISO/GEN 12:1999 *Guidelines for the development of WSSN Web sites*, 1999 (2nd edition)¹⁰. The document is available in the *ISO general documents directory* on the ISODOC server or on WSSN at www.wssn.net

A template for creating a standards organization's Web site and a database providing information for the technical work programme and catalogue of national standards for the Web

site have been designed by the ISO Central Secretariat. The template has been developed using MS FrontPage and MS Access. The template and the database will considerably facilitate the creation of a national standards organization's Web site.

Once a national standards organization's Web site has been created, it should be recorded on a CD and sent to the service provider (sponsoring or commercial organization). Before announcing the launch of the Web site, it should be tested. The site should be regularly updated. If an update concerns only a few files, then only these files need be sent (via FTP, e-mail, or other, as agreed with the provider) to the service provider. Otherwise, it would be easier to supply the complete site for the provider as an update.

It should be recalled that the equipment supplied to each beneficiary country of the Mediterranean 2000 project includes one system configured (with appropriate hardware and software) to operate as a Web server for the organization. The Web sites for the organizations have been designed on general lines. The structure, some of the pages and a number of links to ISO and other reference sites and services are built into the template. Some sections and pages will be completed on-site, with information provided by the NSBs, with translations and with the inclusion of additional services (e.g. a catalogue for national standards, if available).



⁹ ITSIG – Information Technology Strategies Implementation Group.

¹⁰ A summary of these Guidelines is given as Annex II to this Manual.

4. IT – supported international standardization activity

This section is structured as follows:

- 4.1 Most effective ways of accessing, using and filing information from ISO and/or other NSBs
- 4.2 Electronic balloting



Objective

The objective of this section is to illustrate:

- how to obtain electronic access to information from ISO and other NSBs and how to use and file it;
- how to take part in international standardization activities electronically.



Results

After working through this section, it will be possible to:

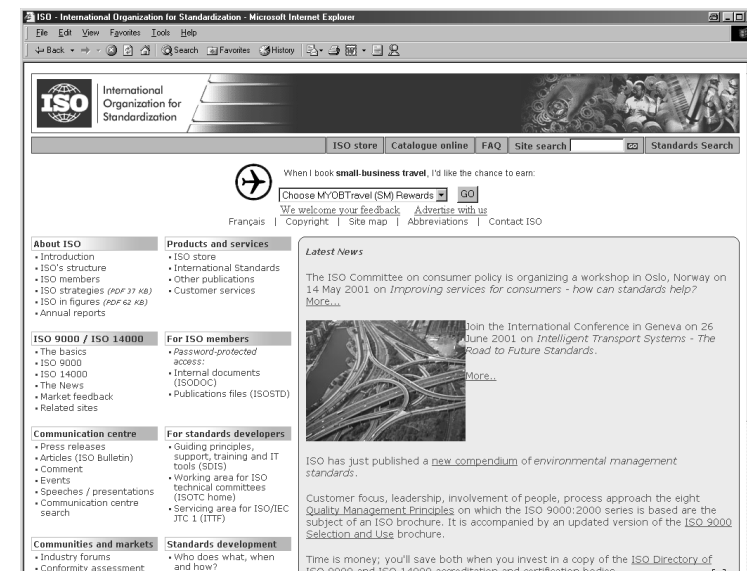
- gather information and keep informed of the standardization activity worldwide;
- understand how to take part in ISO standardization activity (balloting) electronically.

4.1 Most effective ways of accessing information from ISO and/or other NSBs

The use of IT tools in an NSB is of the utmost importance for three main reasons:

- a) access to information;
- b) receipt and exchange of formal communications (e.g. ISO circular letters);
- c) participation in ISO work by means of "electronic procedures" (notably electronic balloting).

The services offered by ISO Online and the other ISO servers, which may be accessed through the ISO Web site, represent very useful tools for getting information, as well as for setting up a link both to ISO and to the other NSBs, with the main purpose of speeding up the work and enabling all parties involved to enter into a synergy-promoting environment.



For standards developers wishing to get information, be provided with tools and instructions, find the right way or the right person to contact, in a word: to work in a quick and effective way, the SDIS (Standards Developers' Information Site) is a valuable tool.



ISO server

This server may be freely accessed directly from the ISO Online home page, since it is not password-protected, by clicking on the SDIS link under "For standards developers". The latter contains three options: SDIS – ISOTC Home – Information Technology Task Force (ITTF).

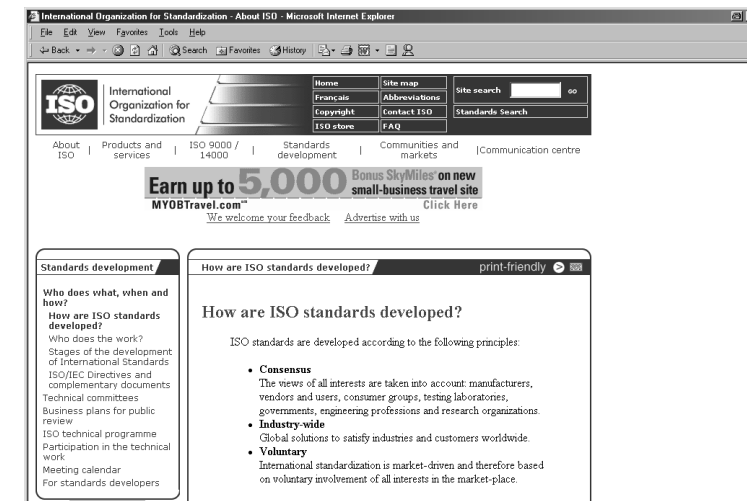
SDIS is the site where anybody involved in standardizing activities, whether a Technical Officer or a member of the IRS staff for example, may find the information and tools he/she needs. The site consists of 15 sections, each detailing what it contains, with a description and an explanation of its purpose and use, including ISO's basic procedures (all parts of the ISO/IEC Directives), templates, training information, etc.

For example: an NSB recruits a new clerk in the IRS Department or a new national expert intends to take part in the international activity for the first time and wishes to be appointed as a member of a working group. In both cases the person in question is to be trained in the procedures ruling the standardization activity and should become familiar with them. He/she can do so by accessing the SDIS, clicking, for example, on "General Information" for a comprehensive view or on "Basic Procedures", for more detailed information contained in the ISO/IEC Directives, Part 1 and 2, or in the Vienna Agreement.

Another example may concern an NSB which is allocated a TC/SC/WG Secretariat for the first time and wishes to learn about how to run it and, above all, how to draft and finalize the texts of draft standards to be submitted for voting.

The section called "Writing standards" is a very useful tool for getting general and theoretical information, while that entitled "Templates and tools" gives instructions about the actual instruments needed for finalizing a text intended to become an international standard.

Another important tool is the section of ISO Online called "Standards development", accessible from the home page.



Some of the information contained in this section is the same as may be found in the more general SDIS, but this section is more focused on the following six items:

- a) **"Who does what, when and how"** offers general information on the technical activities carried out within ISO, including who develops standards and how they are developed, the relevant stages of the standards-making process and the rules. Links are included to the SDIS.

Useful for: getting more familiar with the standards-making process and its rules in order to be able to participate in it actively and correctly.

- b) **"List of Technical Committees"** leads to information about the structure and secretariats of each technical committee and subcommittee, and provides an indication of which countries participate in the work of each TC and their status (P-Member, O-Member).

Useful for: having a clear and complete overview of the technical activities and of related participation by ISO members.

- c) **"Business plans for public review"** links directly to the section of the ISOTC server containing the business plans of ISO technical committees.

- d) **"Work programme (drafts and new work items)"** contains the technical programme of each TC. A guide on how to use the programme is given.

Useful for: being properly informed about any item accepted into the standardization process, and thus for evaluating the need for participation according to the interest at national level.

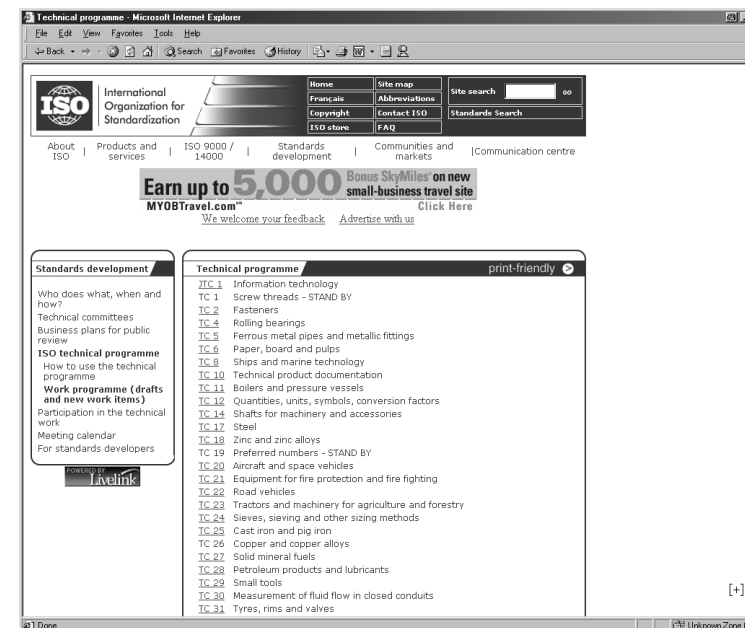
- e) **"Participation in the technical work"** leads to lists showing which technical committees each ISO member participates in, and in what capacity (P-member, O-member, Secretariat).

- f) **"Meeting calendar"** lists the meetings scheduled for each TC and SC, and other ISO committees.

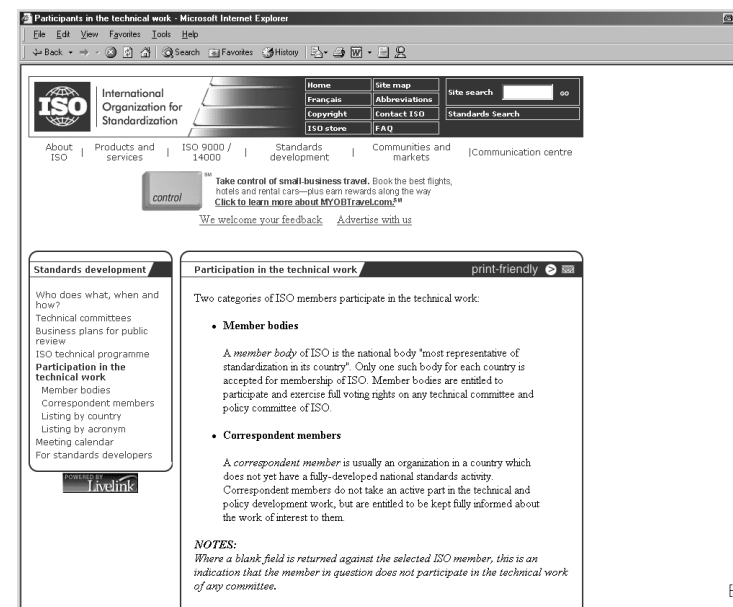
Useful for: keeping track of the dates and venues of the meetings to be held by technical committees and making arrangements in due time to participate in the event.

For example: for trade and commercial reasons a subject like food products is becoming more important and relevant for the economy and the industry of the country of an NSB who has never taken part in the standardization activity of ISO/TC 34, the TC dealing with this sector.

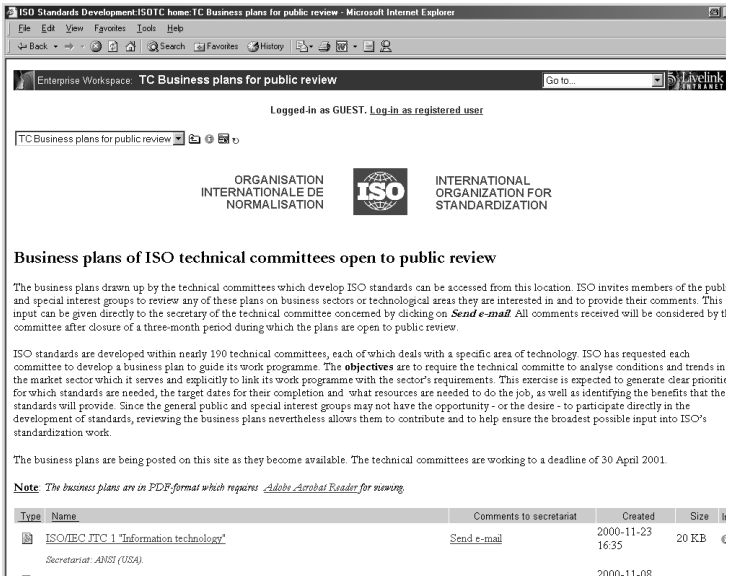
The person at the NSB in question, whether he/she is a Technical Officer, a member of the IRS Department or, for economic policy/strategy matters, a representative of top management, may access the section of ISO Online called "List of technical Committees", look for "ISO/TC 34", click on it to obtain relevant information. To continue the example, the user may then select the option "ISO work programme" and click on "TC 34" to view the lists and status of work items under the responsibility of the TC and its SCs.



Should this information not be exhaustive enough, the user may continue the search by clicking on another option, that is “Participation in technical work”, look for the country to which the Secretariat of ISO/TC 34 has been allocated and, clicking again, get an idea of the member bodies and correspondent members participating in the work of this TC as P- and O-members according to the interest and the importance of the subject at national level.



This section also refers to an important new tool recently introduced by ISO for the management of its standards-making activity: the “Business plan” which is a detailed overview of the technical activity of a specific technical committee, directly related to the market sector it is involved in, prepared with the clear purpose of meeting the trade needs of that specific sector and the requests coming from it.



Each TC is required to finalize its business plan and keep it up to date, adding or deleting work items as needed.

By clicking on one of the TCs mentioned in this list, one can access the information contained in its business plan and comment on it through a direct link to the e-mail address of the TC Secretariat.

This kind of information may be of great use at national level: having a clear overview of the relation there is between market needs and the subjects of standardization can be very useful for deciding, at national level, whether direct participation may be worthwhile and to what extent.

For those directly involved in standardization work, both as participants in international activities and as back-office workers, the ISO Online home page also links to a number of other ISO servers, as follows:



The other ISO servers

With the exception of ISO Online, which is entirely open, and of ISOTC, which is partially available to the general public, ALL THE OTHER ISO SERVERS, i.e. ISODOC, ISOSTD and most of ISOTC, have RESTRICTED ACCESS. They are available TO THE ISO MEMBERS ONLY and in particular TO THE SELECTED REPRESENTATIVES designated by each Member.

Some categories of documents are available only to the individuals representing ISO members in governance bodies and other committees (e.g. in the "Council" folder, documents other than the Council resolutions and Council minutes are accessible only to the representatives of the ISO Council members).

For ISO members

- Password-protected access:
- Internal documents (ISODOC)
- Publications files (ISOSTD)

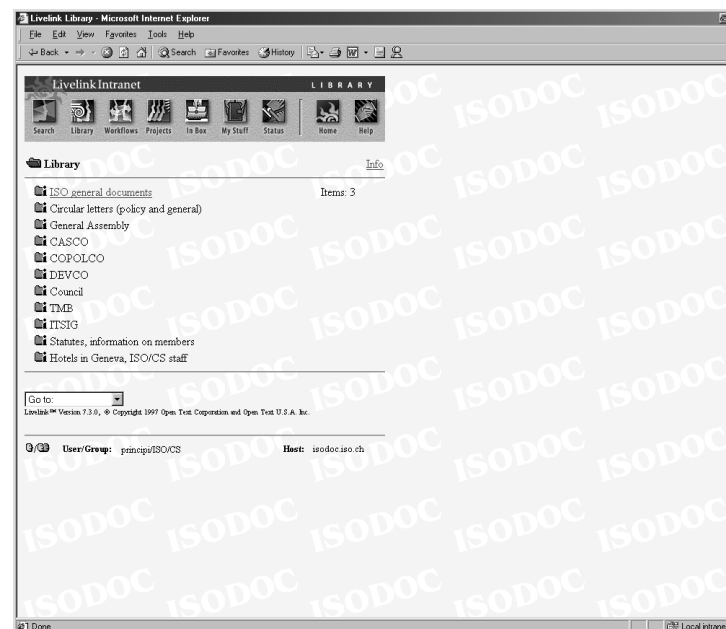
For standards developers

- Guiding principles, support, training and IT tools (SDIS)
- Working area for ISO technical committees (ISOTC home)
- Servicing area for ISO/IEC JTC 1 (ITTF)

a) ISODOC (Documents)

ISODOC is the official repository of a number of ISO documents, grouped under the following categories:

- ISO Statutes and information on ISO members
- ISO general documents (policies and principles to be applied by ISO and ISO members in a variety of fields)
- Practical information on the ISO/CS and on accommodation in Geneva
- ISO circular letters (general and policy)
- Documents (working documents, minutes and resolutions) of the ISO governance bodies, policy development committees and other groups under their responsibility.



Access to ISODOC is protected by a password supplied by the ISO/CS to the person designated to be notified by e-mail each time ISO updates this server by loading onto it a circular letter, an official numbered document or an enquiry to be voted on.

The notification itself provides the link to the ISODOC Server and the relevant access to the Livelink Intranet.

Since in most cases the representative of the NSB appointed to these bodies comes from the top management of his/her institute, it may be advisable for him/her to communicate the access password also to the person (secretary, IRS staff member or others) working in cooperation with him/her and handling secretarial tasks.

In fact, linking to this server any time it is updated implies taking a series of practical actions in order to get the information, namely:

- click on the function marked "LIBRARY" among the different options provided and appearing on the screen;
- a mask shows "USERNAME" and "PASSWORD": the first is the name of the person appointed as a member of one of the groups listed above, while the password is to be provided by the ISO/CS and, when supplied, remains personal. Once these two data elements have been entered, click on "LOG-IN". The list of all the accessible ISO groups appears: click on the group of interest.

All the documents you may access are in PDF format, which makes it possible to open, download (clicking on FETCH), save as a PDF file, print and store them on server (see Annex IV for guidance on storing on the server).

The most pertinent example is that of the "General Assembly". Each ISO member has access to the General Assembly documents. Communications from the ISO/CS concerning General Assembly, as well as other subjects of general interest (e.g. information on members, circular letters – general and policy) are sent to the members' central e-mail address (those given in the *ISO Memento*). The password enabling access to the "General Assembly" directory on ISODOC is sent to the member's CEO, who should then identify the person responsible for managing these communications with ISO/CS. This responsible person will then have access to the entire "General Assembly" directory. He or she can receive the e-mail notification any time ISO updates this folder, may access the new documents or circular letters, print them if a paper version is needed, or simply forward them to his/her director and to all the people who are supposed or expected to be aware of the content of that document or letter.

Because this information is being updated and changed all the time, it is important for the person in charge to consistently monitor this activity and the flow of information from and to ISO. The frequency of updates and changes varies according to the different directories.

Another important suggestion is to keep the same naming convention for filing local copies, so that finding documents, letters or whatever is present on this server can be easier and quicker.

It is the secretary who may take care of all this and even collect any feedback, if needed, by filing it in a special folder in his/her e-mail application and monitoring all the activity connected with the ISO Council, including the preparation of any documentation for meetings.

As indicated in Chapter 2, electronic distribution of documents by the Central Secretariat IS SOON GOING TO REPLACE THE CIRCULATION OF PAPER.

If documents are to be circulated within the NSB, such a distribution can be made according to the kind of IT tools available (see Chapter 2). If, on the contrary, documents are to be sent outside the NSB, electronic mail may be a very useful and quick way for despatching and receiving the requested information.

These documents are also to be filed, and so are possible comments or communications related to them.

Regarding filing, see Annex IV.

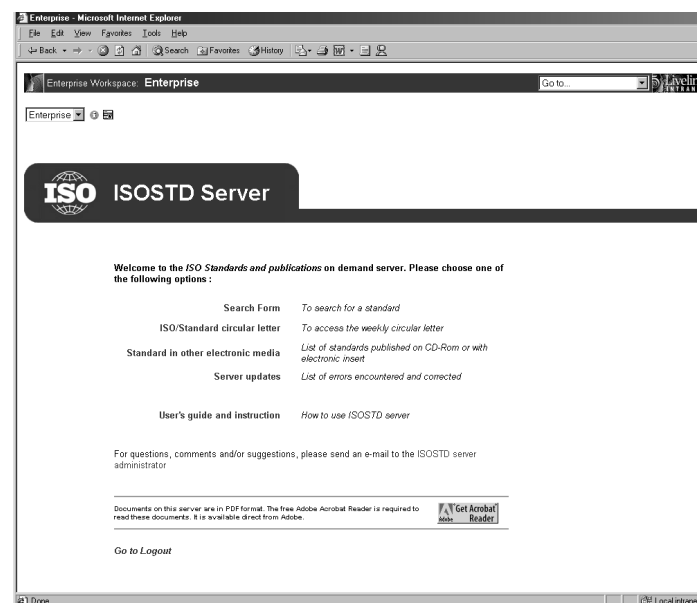
If comments are sent by e-mail, the file containing them can be saved and kept in a special folder within the e-mail application itself; if they are sent in paper form, two “archives” may be arranged, possibly as a supporting index file.

b) ISOSTD (Standards and Publications)

This server contains currently valid ISO publications and provides access to two repositories: one for standards, which is already accessible and includes the .pdf files of the published standards, and one for other publications, which is still being studied and is expected to give access to ISO publications other than standards. This server is not freely accessible either: it is open ONLY to ISO Member Bodies and is protected by a password to be provided by ISO/CS. Once in possession of the relevant password, the “USERNAME” and “PASSWORD” fields are to be filled out, exactly as for ISODOC, before clicking on “LOG-IN”.

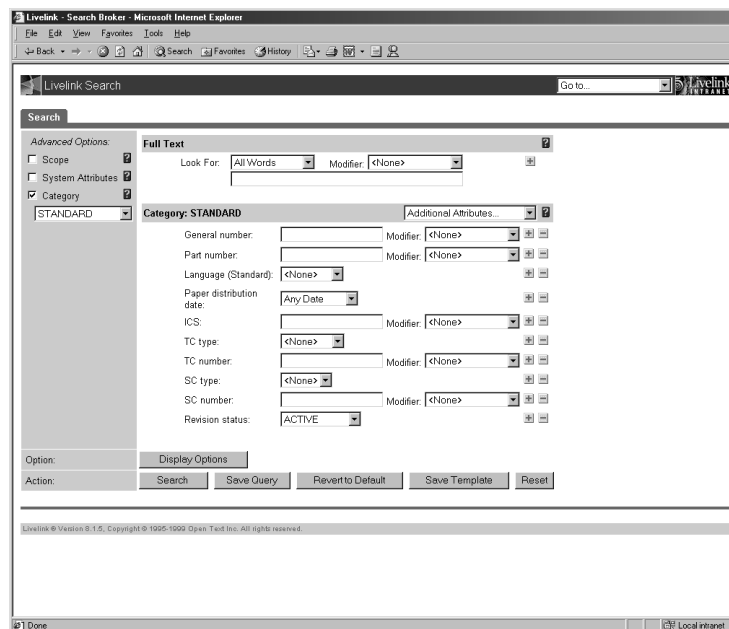
Once you have entered, six options are available, including the User's guide and instructions:

- Search Form (to search for a specific standard in its English and/or French version);
- ISO/Standard circular letter (listing the circular letters circulated by the ISO/CS each week of the current year, displayed by month and by week);
- Standard on other electronic media (listing the standards published on CD-ROM or with electronic insert);
- Server updates (listing the errors found and corrected in the various standards or language versions).



Clearly the first option is the most important and the most used.

After clicking on the “Search Form” option, the form that appears should be filled out with the data concerning the standard you are looking for, i.e. the number, the part, if any, and the language version. Clicking on SEARCH gives access to the PDF file of the English and French version (unless you requested only one of these two versions), that you may open, print, save and download.



This option is of the greatest importance for the national activity. The most obvious advantage lies in the possibility of obtaining the needed standard in "real time".

WARNING: Downloading large files with dial-up connections may take some time. In Annex V, the results of tests carried out with some ISO members in developing countries are presented. It is important to note that, although it may be annoying to wait for a few minutes to complete the download of a large document, the improvement of the overall process is ENORMOUS (reduction of TOTAL delivery time, easy access, etc.).

This system is at any rate preferable to waiting for a standard to be despatched by ordinary mail, considering also the risk of non receipt, especially in those countries far remote from the ISO/CS.

Moreover, if something goes wrong (copy lost, file damaged, etc.), a new copy can easily be retrieved from the server without further delay. This also provides for better dissemination of ISO standards at national level, leading to a better and quicker sales service, since the only time needed is for downloading from the ISO Server, by clicking on the "FETCH" option.

Needless to say, electronic distribution in no way diminishes the copyright protection clauses in force for paper versions: these principles are still to be strictly observed by all ISO members.

c) ISOTC (Technical Committees)

This server is divided into three main parts.

The first is called "Standards Developers' Information Site" (SDIS) and has already been introduced at the beginning of this Chapter. The second part is the ISOTC homepage, which is partly password-protected.

The purpose of this server is to support the collaborative work within ISO TCs, SCs and WGs, as well as all the balloting and voting aspects which will be explained in detail later on. This part offers a series of very useful "instructions" for getting information about what is being standardized within each technical committee, for establishing contact with the ISO/CS and/or other NSBs and for taking a more active part in the work by becoming more familiar or with the e-balloting tools, and learning through a specifically designed ISOTC User Guide (see www.iso.ch/e-balloting).

The third part, entitled “Information Technology Task Force” (ITTF), is also partially password-protected and covers the day-to-day planning and coordination of the technical work of joint technical committee ISO/IEC JTC1 “Information Technology”.

4.2 Electronic balloting

This is the other core aspect of the standardization process for which developing countries need to be properly equipped. They also need to be familiar with the use of the corresponding IT tools. This aspect involves voting on Draft International Standards, both at the enquiry and final (approval) stages, which will soon replace the despatch by ordinary mail or fax, as practiced in the past.

More specifically, the practical procedures to be carried out are as follows:

- Access the URL <http://isotc.iso.ch/livelink/livelink>
- This server is partially password-protected; this means that, at this stage, a password provided by the ISO/CS is needed. Requests to that effect are to be made using a form called “Authorization for ISO Balloters”, indicating the name of the person within each NSB in charge of electronic balloting, who will be the only person authorized and responsible for e-balloting.

Any change on this server is notified by an e-mail containing a link to the previously mentioned URL. By using the password provided by the ISO/CS, the authorized balloter can access the files which may be opened, saved, downloaded (clicking on FETCH) and printed, for distribution as appropriate at national level.

Any time a draft is submitted for voting, the authorized balloter receives a notification by e-mail from ISO/CS, informing him/her that one or more drafts are being made available for voting.

The ISOTC homepage contains a guide for e-balloting.

NOTE: As far as draft standards are concerned, distribution and filing are of the greatest importance for the national activity.

For any draft submitted for voting, when the NSB is a P-member, it is necessary and fundamental that the draft be circulated to the national experts operating in the field covered by that DIS, because this is the only way to express a national position and to bear on the technical content of the draft.

That is why it is important to define the method of distribution.

Indeed, it would be particularly advisable to make use of electronic means, and to circulate the DIS to be voted on, in the form of a .pdf file attachment to an e-mail message.

Filing documents is important as well: it would be expedient to save and file the drafts in electronic format, so that they may be traced for any future needs or to respond to requests.

For more details see Chapter 2 and Annex IV.

- Once registered for balloting, choose the option “DIS/FDIS Balloting” in the main menu.
- The mask showing the search mode appears: the draft subject to voting, be it a DIS or a FDIS, may be selected by three main query modes: a) starting or closing date for voting; b) number of DIS or FDIS; c) number of the TC that has developed it.

- Once the draft to be voted on has been identified, it appears in a list. Click on it. The same box offers a list of all the voting countries with the relevant status (P- or O-membership). Click on the name of your country to obtain permission to cast the national vote.
- The vote casting box offers three options: Approval – Disapproval – Abstention, with two alternatives: with or without comments.

1st alternative: WITH COMMENTS

- If you have comments, this is to be notified BEFORE casting your vote;
- Click on the window to the right of the vote casting box, called “Add New Item”, and choose the option “Comment file”;
- Comments are to be submitted using a special template prepared in Word 97 and divided into parts according to the clause to be commented on and the type of comment (general, technical, editorial). Figures or complex objects are to be added and inserted as separate files in the Comments column. If an already made comment needs to be modified, open the Ballot screen for the ballot concerned and click on “Add Version” to the right of your comment file. In the same way, if you want to delete a comment file, click on the button marked “INFO”, open the box “FUNCTION” and choose the option “DELETE”. Once done, the vote is to be cast again using one of the options: Approval – Disapproval – Abstention.
- Bear in mind that comments may be saved and filed under an appropriate name in order to keep track of them, if needed.

2nd alternative: WITHOUT COMMENTS

- Click on the vote casting box, choose the required option among Approval – Disapproval – Abstention and click on the button marked “VOTE”.

A message on the screen will confirm that the vote has been accepted.

The same procedure is to be followed for casting votes on FDIS drafts, with the only difference that the alternatives “WITH” or “WITHOUT COMMENTS” are not provided, because Member bodies voting positively are not entitled to express comments at this stage. However, they can notify errors found in the text to the TC/SC Secretary.

When the vote is closed, the authorized balloter may access the “Vote result screen” which contains the table of results and the relevant comments on each draft.

These are the actions to be undertaken to see the results:

- Search for the ballot using the “BALLOT SEARCH SCREEN”
- Choose the option “CLOSED” in the field “STATUS”
- Click on the draft identified
- Click on the button “INFO” and choose the option “REPORT” from the box “FUNCTION” taken from the menu.

NOTE: Training sessions dedicated to presenting how to work with IT services available from ISO, with a special focus on electronic balloting, are being organized by ISO on a regional basis as a means to support member bodies, especially in developing countries.

ANNEXES

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Annex I

Description of the most common IT products to be used and recommendations for their use¹¹

Word Processing

The most commonly used word processing tool today is Microsoft Word. It has a large number of features, although a small subset of these is sufficient for producing high-quality documents.

In order to facilitate the processing of draft documents throughout the ISO System, authors are encouraged to use, whenever possible, the same tool. At present, Microsoft Word 97 is the most frequently used application for standards drafting, and is the word processor currently used by the Central Secretariat. Therefore, if an author is using Word 2000, it is preferable for the time being to disable features not supported by Word 97 when saving.

In text editing, a good habit is to use a template. Whether for writing a letter, an internal communication or a draft standard, one should use a predefined "model", that is, a template, specifying – for each type of document – all editorial elements and attributes: styles (size, colour, alignment, line spacing...). This is the only way to ensure consistency among all documents issued by the organization, independently of the person who has prepared them.

¹¹ This section is an abstract from the ITSIG Guide for the use of IT in the development and delivery of standards.

If an organization has been allocated one or more ISO/TC secretariats, the ISO template shall be used for the preparation of ISO and ISO/IEC drafts and final drafts (see ITSG Guide 3.2.2.2). Such a template is available from **www.iso.ch/sdis**

The ISO templates are available in a number of forms: the basic templates and various versions of the ISO “wizard” template. The basic templates may be used in all popular word processing systems. The wizard templates provide in addition some automated features intended to simplify document preparation. Wizard templates are available for use with Word 6.0/95 and Word 97 under Microsoft Windows.

Presentations

Microsoft PowerPoint provides a complete set of tools for creating powerful presentations. Organize and format your material easily, illustrate your points with your own images or clip art, and even broadcast your presentations over the Web. **www.microsoft.com/office/powerpoint/default.htm**

Drawings

This document does not specify a recommended software tool for figures. However, for optimizing the ability to exchange figures, a Computer Aided Design (CAD) software package should be used in drawing offices. In the choice of the specific package, attention should be paid to the software most frequently used by the NSBs with which exchange of documents is more likely and frequent.

Exchanging electronic documents

The circulation of paper is now largely superseded by the circulation of electronic documents. This turns out to be far more efficient and less expensive; however, it requires organization and choice of the appropriate format, which can be read and used by the receiver without losing any information embedded in the document.

Full details concerning the ISO Central Secretariat requirements for provision of text in electronic form are available on the SDIS site: **www.iso.ch/sdis**

Exchange formats

The file format shall be chosen according to the purpose for which the document is being distributed (i.e. revisable format for purposes of revision/commenting/etc. and a display format for purposes of review), and according to any special needs (e.g. graphics, use of tables, etc.).

The following formats are acceptable:

- plain ASCII text file with explicit carriage return and line feeds encoded in accordance with ISO 8859-1 (e.g. DOS text files and Windows text files) – for e-mail and simple messages.
- Microsoft Word version 6.0 or higher – for memos etc.
NOTE: with template for standards.
- Hypertext Markup Language (HTML) version 4.0 or lower – for Web pages.
- Portable Document Format (PDF) – for preserving the presentation in printout.

- SGML/XML conforming to the ITSIG exchange DTD in the case of standards – for standards and related metadata.

Complex documents tend to be large and often consist of many parts. It is useful to take advantage of compression and archiving utilities to package and compress such documents for delivery via diskette or the Internet. The most commonly used compression and archiving utility is the zip utility which can package and compress a multiple number of documents. A Windows version called Winzip can be obtained from **www.winzip.com**

Also, the Portable Document Format (PDF) helps to make documents more compact and consequently more manageable.

A user can browse PDF documents with Adobe Acrobat Reader and Adobe Acrobat. The Acrobat Reader is available free of charge and can be downloaded via the Internet from **www.adobe.com**.

Further details on how to generate PDF files are contained in the ITSIG Guide on the use of IT to support standardization activities.

Exchange security

Viruses are unwanted programs or portions of programs, usually self-replicating, which attach themselves to other programs or documents. Their effects range from harmless to complete destruction of all files on the computer, or even on the network. They are generally transmitted when files are exchanged from one computer to another.

Users should therefore take precautions to protect themselves against viruses. Programs are available from any computer

store; examples of widely used programs are McAfee and Norton. It is important to ensure that the virus lists for the program you use are regularly updated.

It is good practice for the sender to ensure that all files being sent are virus-free. The recipient of files should however also check all incoming files, regardless of the media used.

Exchange media

Unless otherwise agreed between the parties concerned, diskettes should be 90 mm (3,5) high density (1,44 MB) flexible disk cartridges (diskettes).

CD-ROM should be 115 mm (4,5) diameter with a capacity of 650 MB and conforming with ISO 9660.

Other media such as Zipdisk may be used but senders should ensure that the recipient has the necessary hardware to read the medium before sending it.

Internet may be used as an exchange environment as well. Both FTP and HTTP protocols may be used. Please note the need to protect any server providing these services on the Internet.

Documents can be readily exchanged between different computer systems using HTTP FTP server. The main advantage of transmitting documents using FTP rather than as e-mail attachments is that they are placed in a single location and are fetched, or downloaded, only as necessary. In comparison, files submitted as attachments to e-mails are downloaded whether or not the reader needs them. Furthermore, on some e-mail systems there are limits to the size of documents which can be exchanged. Also, it is not unusual for a

document to be altered immediately after its circulation (e.g. to correct a typographical error) and it is more convenient to post the correction on the HTTP/FTP server rather than to recirculate the attachment via e-mail to all recipients.

An excellent method of exchanging large documents is to combine the use of FTP with e-mail. For example, it is possible to send a message to everyone who might be interested in the document, informing them where it can be found (e.g. with an URL). It is then up to each recipient to decide whether they want to fetch and read the complete document.

The ISO Central Secretariat provides a password-protected HTTP server for documents it distributes and, on request, for technical committee documents.

Database

A database is simply an organized collection of data. A database management system (DBMS) such as Access, FileMaker Pro, Oracle or SQL Server provides the software tools you need to organize that data in a flexible manner. It includes facilities to add, modify or delete data from the database, ask questions (or queries) about the data stored in the database and produce reports summarizing selected contents.

DBMS products vary greatly in complexity, performance and price. The products mentioned below include DBMS of different levels of functionality and price.

FileMaker Pro databases are popular among both Macintosh and Windows business users. This easy-to-administer platform

ships out of the box with business templates for the beginning database administrator **www.filemakerworld.com**

Microsoft Access provides users with one of the simplest DBMS solutions on the market today. Regular users of Microsoft products will enjoy the familiar Windows "look and feel" as well as the tight integration with other Microsoft Office family products. **www.microsoft.com/office/access/default.htm**

Microsoft SQL Server offers tight integration with the Back Office series of server products. **www.microsoft.com/sql/**

Oracle's database products provide maximum completeness and solidity and they are among the most popular in the world today. **www.oracle.com**

Electronic mail

There are several e-mail client programs; some can be purchased, while others are free. Here are just a few:

Outlook 2000 (comes with MS Office)
www.microsoft.com/office/outlook/default.htm

Outlook Express (comes with Internet Explorer)
www.microsoft.com/windows/oe/

Netscape Messenger
home.netscape.com/communicator/messenger/v4.0/index.html

Eudora Light
www.eudora.com/eudoralight/

Eudora Pro
www.eudora.com/pro_email/

Annex II

Recommendations and guidelines concerning the development of a WSSN web site

This Annex summarizes the key principles of the "Guidelines for the Development of WSSN Web sites" (available on the WSSN web site at **www.wssn.net** in the Reference Documents section) and of the *Guide for the use of IT in the development and delivery of standards* developed by ITSIG (see chapter 7). For further details, please refer to the above mentioned source documents.

Another useful reference is the Web site of the World Wide Web Consortium, W3C, at **www.w3.org**. Of particular interest in the context of Web content is the recommendation Web Content Accessibility Guidelines.

General principles

- All sites should be kept up to date; and the date of last update should be indicated on each updated page.
- Copyright information and notices should be incorporated where appropriate. It is also recommended that each page display a copyright link which, when clicked upon, leads the user to the organization's copyright notices and contact for further information. For further reference: Guidelines and policies for the protection of ISO's intellectual property (document ISO/GEN 9:1997). These guidelines should be used by ISO and its members.
- A user feedback form should be provided.
- For information retrieval purposes, certain sections of WSSN members' home pages need to be capable of being accessed through a common language. English has been agreed as the primary or second language most commonly used. Therefore it is recommended that, as a minimum, the main menu and the sections related to the description of the organization and catalogue should have an English language version.

Contents¹²

It is recommended that each Web site contain at least the following sections, accessible through the first (home) page:

Introduction of the standards body and its Web site	This section should provide general information on the particular standards body and contact information (postal address, e-mail address, telephone and fax numbers, etc.).
Information on standards activities	It is recommended that this section introduce the subject of standardization and provide a link to the general information on standardization given on the WSSN site. This section could include any complementary national or regional information which is felt relevant. A meeting calendar should be included, as well as the technical work programme of the standards body.
Catalogue	<p>The Catalogue should provide bibliographic information on all publications and documents available for sale from the standards body. Its content should also include information to the user on how to identify and order the publication he/she requires. The Catalogue should contain at least the following sections:</p> <ul style="list-style-type: none"> – how to use the Catalogue – how to place your order – standards and other normative documents – publications other than standards. <p>The search page should provide for retrieval of standards by a choice of criteria, e.g:</p> <ul style="list-style-type: none"> – product/document reference – keywords – ICS code – Development committee – Type of document – Range of dates of application.
Work Programme information (Project List)	<p>Please follow the Guidelines contained in the document: <i>Notification procedures related to the Code of Good Practice for the Preparation, Adoption and Application of Standards</i> contained in Annex 3 of the WTO Agreement on Technical Barriers to Trade (document ISO/GEN 5:1995).</p> <p>The work programme normally contains information on, at least, all projects or work items for development of standards and other normative documents. The Guidelines contained in document ISO/GEN 5 indicate that all items of the work programme should be classified in accordance with the International Classification for Standard (ICS), that the stage system used should be the International Harmonized Stage Code System (HSC), and that references to any international standards taken as a basis should be referenced in accordance with ISO/IEC Guide 21:1999.</p>

¹² For more detailed information, please refer to Annex IV and the Web site Template.

Conformity Assessment	It is recommended that this section introduce the subject of conformity assessment given on the WSSN site. In addition, an explanation of the conformity assessment activities undertaken by the particular body should be provided. This section might also include certification schemes operating in the member's area, as well as lists of accreditation bodies, certification bodies, certified companies, etc.
Products and services	This section should provide information on the standardization-related products and services offered by the body, including information services, promotional services, etc. Where possible, the body should consider allowing online ordering or registration, as appropriate.
News	This section should include news items of interest to the customers (e.g. new national, regional, international standardization activities, new marks of conformity, coming events...).
WSSN	This item should provide the WSSN logo, with link to the WSSN home page (www.wssn.net). It is recommended that the full title (and/or translation of the full title) of WSSN is given.

Technical tips

It is recommended that a small consistent set of information be included on every Web page, that is: a group identifier (such as the title of a committee), the last date of modification of the page, and a Webmaster e-mail address or link to a contact page. This will help to identify your page if someone comes to it browsing through the Web without passing through your home page.

To assist the casual browser, it is also recommended to provide on all your pages a “toolbar” or side frame, with links to some of the main items on your server such as your home, a “latest news” page, etc.

Help navigation by the user by keeping text short and to the point. The Web was meant for browsing rather than for online reading.

Do not overwhelm your visitors with a large number of options. "Less is more" in Web design. Similarly, limit the use of graphics to the essential: remember that white space accentuates what is there and well-spaced elements increase readability. Italic type is hard to read on many computer screens and should be used sparingly. Make sure that the background colours do not interfere with the readability of the text.

Give readers a road map, perhaps through the use of an image map, to help them know where they are and how to get to where they want to be.

Reduce frustrations on download time: include information concerning the size (in megabytes for example), the type (images, sound, etc.) and the format (PDF, TIFF, AU) of a file when providing links to such files.

Limit the use of elements that take a long time to load, including large graphics, frames, animated GIFs, Java or Javascripts.

When using the same graphics on your pages, use the same URL as the image source, so that the visitor can take advantage of the local cache.

Test your pages over a 14 400 modem. Most pages should take no longer than 50 seconds to load; 30 seconds is preferable.

Good practices

Do not use the term "under construction" for a page: every web site is generally considered to be under constant construction. It is better to construct completely the page and provide it when it is finished.

Do not use the term "click here" for a link: the link should be incorporated into the wording of the text. A link will be evident in the browser (i.e. underlined, different colour, etc.).

Be aware that many readers find the BLINK tag annoying, so use it sparingly.

Print your page and inspect it: many users like to make hard copies of Web pages. It should be fairly easy to read.

Annex III

ISO ONLINE

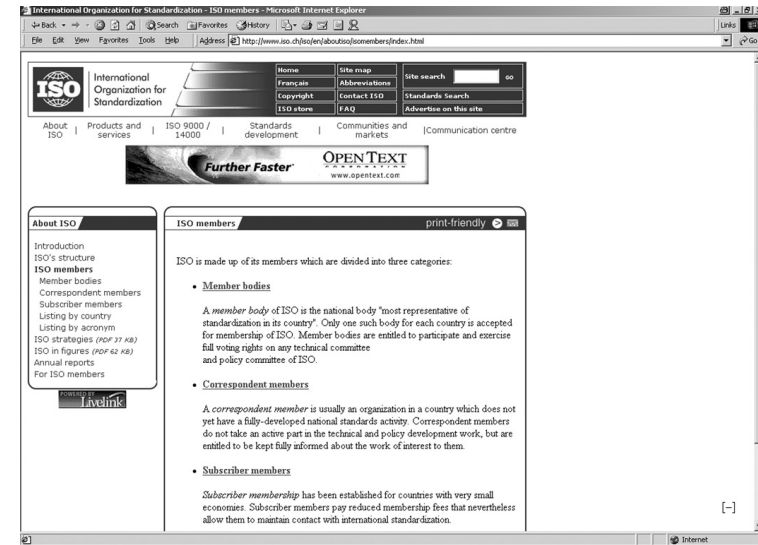
Another important example of an effective and useful application of information technology comprises the several services offered by ISO Online, in terms of the amount and kind of information supplied, as well as the different links to other servers and actions aimed at facilitating standardization activities and work.

The ISO home page gives a snapshot of the main contents of the different sections of ISO Online, plus a column featuring news articles.

Let us examine in more detail the most useful sections and those in which it is possible to find interesting information with special relevance to the national activities:

ABOUT ISO

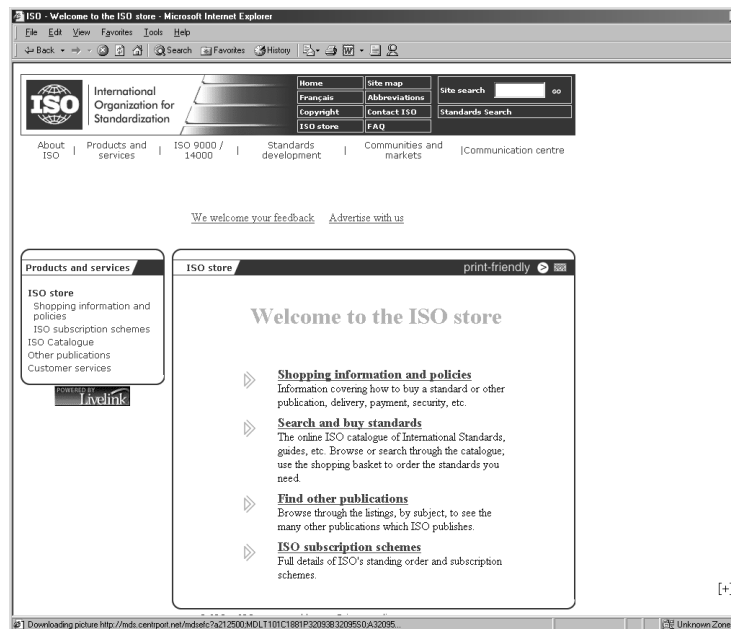
This chapter includes five detailed lists of the ISO members, the first three lists according to their status: member bodies, correspondent members and subscriber members. Clicking on each of these three categories gives access to the list of the relevant standards bodies, complete with name, address, e-mail and Web site, if any. Two further lists give information on all ISO members, by country or by acronym.



PRODUCTS AND SERVICES

Clicking on this link gives access to:

- the ISO store, including instructions for ordering standards or other publications;
- the ISO Catalogue of International Standards, including an extensive search function and information on Maintenance agencies and Registration authorities (that is, the bodies designated by ISO for those International Standards developed by ISO/TCs which need a competent body with the requisite infrastructure for ensuring the effective use of these international agreements), withdrawn standards, etc.;
- ISO publications other than standards (ISO Bulletin, standards handbooks, etc.).



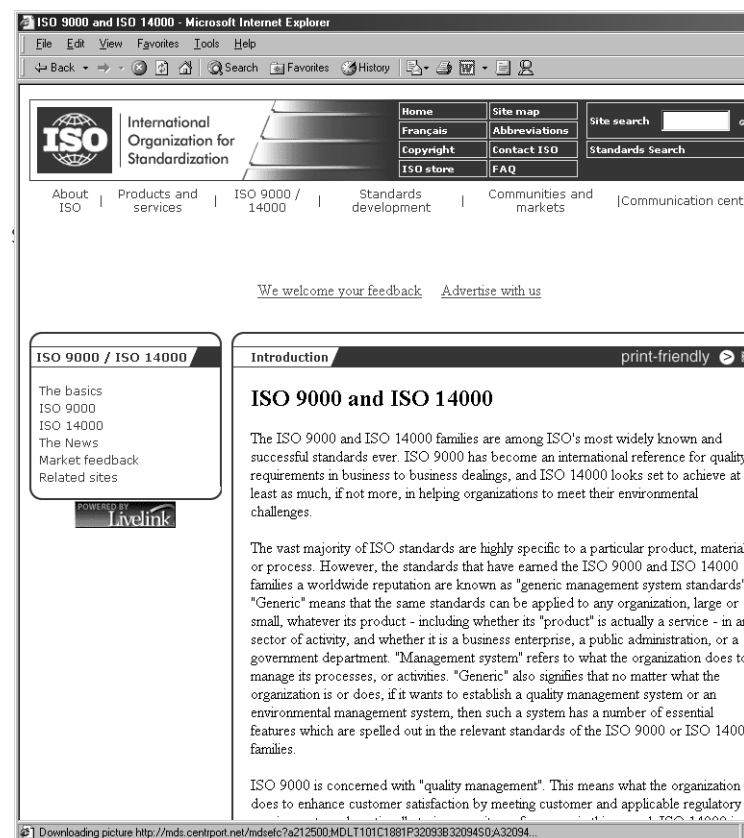
The greatest advantage is the possibility of having real time access to full bibliographic data on the complete set of ISO standards, both those in effect and, if needed, those that have been withdrawn. Any kind of information in this respect may be obtained immediately, merely within the time of connection to the ISO server, without having to wait for days before getting the same information or having to contact the ISO/CS by phone, fax or mail. This kind of information may be very useful both within the NSB and outside, for the purpose of monitoring national activities and being always in line with what is requested by industry and trade in the country of the NSB.

ISO 9000 and ISO 14000



ISO 9000 and ISO 14000

Considering the importance of these standards and the fields they cover, ISO has devoted a well-defined space to information about these series of standards, including related brochures available free of charge.



Annex IV

Recommended architecture of file servers for standardizing bodies in developing countries

Introduction

This Annex sets out a recommended architecture of file servers for a national standards body (NSB) in a developing country.

Depending on the size of the NSB and on physical constraints – such as the location of departments – these recommendations can be implemented on one or several file servers. The structure (servers, repositories, directories, sub-directories) can be enlarged or reduced as necessary.

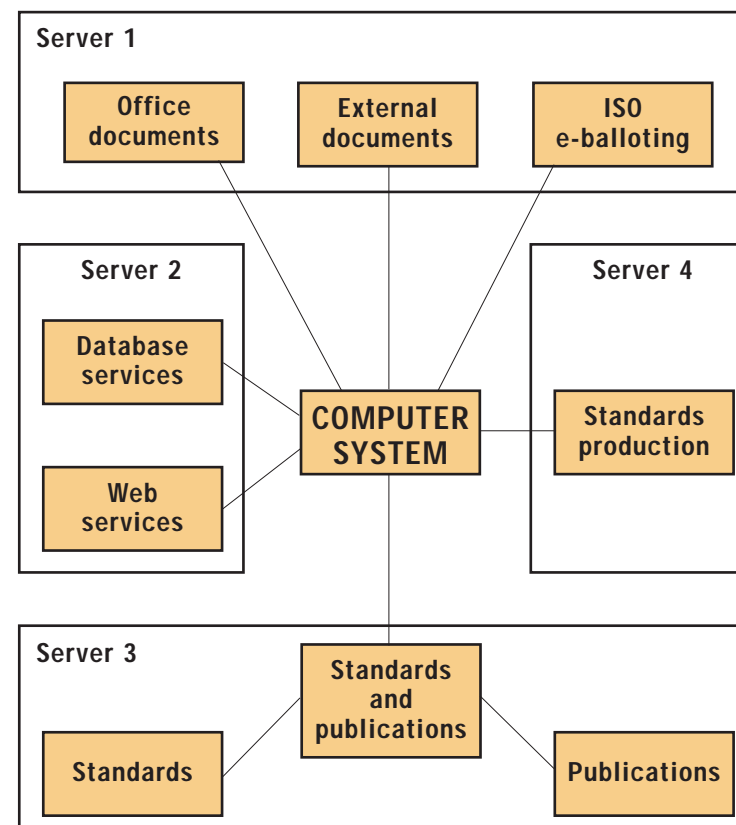
The NSB implementing these recommendations should develop specific rules and procedures with regard to the creation, registration and movement of files, their storage, archiving and retrieval.

General requirements

All of the NSB's electronic documents should be filed, and secure back-up should be defined in the relevant quality documents of the departments/units concerned.

The top-level architecture could consist of three or four servers with the following repositories:

- Office documents (Server 1)
- External documents (Server 1)
- ISO e-balloting (Server 1)
- Database services (Server 2)
- Web services (Server 2)
- Standards and publications (Server 3)
- Standards production (Server 4)



For the purposes of the Mediterranean 2000 project, *Server 1* and *Server 2* are considered here. Some NSBs implementing these guidelines may wish to investigate further servers for Standards and publications (*Server 3*) and Standards production (*Server 4*).

Server 2 is not the server that hosts the Web site: only a copy of the Web site and any associated databases should be on the hosting server. *Server 2* is the server where the master files (Web site and any associated databases) are stored.

Access to all servers/repositories/directories should be protected by passwords.

Description of repositories

Office documents: all the NSB's documents, including incoming and outgoing correspondence in electronic form, should be stored here. Repositories/directories can be password protected. For the purposes of this Annex, the organizational structure follows a division of departments based on the ISO sectors.

External documents: any documents that are received from outside the NSB are stored here in non-revisable formats (e.g. PDF). There are two very important considerations for this repository :

- a) the naming convention used for file names. For ISO documents, it is recommended that the ISO convention is followed.

Examples: General Assembly 01/2000
Council 12/2000
Council 06/2000 (Add.1)
LRS 16/1998

- b) the person responsible for keeping the repository up-to-date must make sure that new documents and revisions of existing documents are put into the repository in the correct place so that others in the NSB are sure to find them. For ISO documents, notifications will indicate new and revised documents. The above-mentioned file naming convention will ensure that revisions are easily recognisable.

Examples: TMB 31/2000
TMB 31/2000 (Rev. 1)

ISO e-balloting: the contents of this repository should mirror the ISO e-balloting system such that all draft standards (DIS and FDIS), comments and correspondence are stored under the relevant ISO technical committee reference.

Database services: any database used by the NSB.

Web services: a Web site may be hosted here, or a file server mirroring that of the host server for the purpose of transferring files via FTP.

Standards and publications: this would be designed to access currently valid publications. The *Standards repository* contains standards and their drafts at various stages of development. The *Publications repository* is designed to access all valid publications other than standards.

Standards production: this would be for working documents and drafts of standards under development by the NSB and would include working documents/correspondence of technical committee.

Conclusion

The general requirements stated in this Annex should be taken into account for each respective server or part of a server. Additionally, specific requirements are presented in the following tables for each server/repository.

Table 1 – Office documents (basic structure)			
Directory [Level 1]	Sub-directory [Level 2]	Sub-directory [Level 3]	Sub-directory [Level 4]
10 Chief Executive Officer	Budget Committee	Working documents Correspondence	
	Executive Committee	Working documents Correspondence	
	Staff Affairs Committee	Working documents Correspondence	
20 Governing Council	Certification Advisory Committee	Working documents Correspondence	
	Finance Committee	Working documents Correspondence	
	Standards Policy Advisory Committee	Working documents Correspondence	
	Testing and Metrology Advisory Committee	Working documents Correspondence	
40 International Organizations	CAC	Correspondence	
	CIE	Correspondence	
	IAEA	Correspondence	
	IATA	Correspondence	
	IEC	Correspondence	
	ILO	Correspondence	
	IMO	Correspondence	
	ISO	Governing bodies (GA, Council)	Correspondence
		Marketing and information (CPSG, ISONET, etc.)	CSPG
			ISONET
		PDCs (CASCO, COPOLCO, DEVCO)	CASCO COPOLCO DEVCO
		Technical activities (TMB, TAGs, etc.)	JTAG 1 TAG 4 TAG 8 TMB
		z - Other activities	
	ITU	Correspondence	
	UN-CEFACT	Correspondence	
	UNIDO	Correspondence	
	WIPO	Correspondence	
	WTO	Correspondence	
	z - Others		

Continued on page 88

Table 1 – Office documents (basic structure) <i>Continued from page 87</i>			
Directory [Level 1]	Sub-directory [Level 2]	Sub-directory [Level 3]	Sub-directory [Level 4]
60 Regional organizations	AIDMO	Documents Correspondence	
	ARSO	Documents Correspondence	
	CEN	Documents Correspondence	
	CENELEC	Documents Correspondence	
	COPANT	Documents Correspondence	
	ETSI	Documents Correspondence	
	z - Others		
70 Metrology	BIPM OIML Reference materials (REMCO)		
80 Certification	Management system certification Product certification z - Other certification		
90 Departmental folders	Accounting		
	Administration		
	Information Services		
	IT Services		
	Legal		
	Personnel		
	Public Relations		
	Sales		
	Technical Departments	Agriculture and food technology	
		Certification Unit	
		Construction	
		Electronics, IT and telecommunications	
		Engineering	
		Generalities	
		Health, safety and environment	
		Materials technologies	
		Metrology Unit	
		Special technologies	
		Standards Coordination Unit	
		Technical Coordination Services	
		Transport and distribution of goods	

Table 1 – Office documents (basic structure) <i>Continued from page 88</i>			
Directory [Level 1]	Sub-directory [Level 2]	Sub-directory [Level 3]	Sub-directory [Level 4]
99 Quality System	Accounting		
	Administration		
	CEO		
	General		
	Information Services		
	IT Services		
	Legal		
	Personnel		
	Public Relations		
	Sales		
	Technical Departments	Agriculture and food technology	
		Certification Unit	
		Construction	
		Electronics, IT and telecommunications	
		Engineering	
		Generalities	
		Health, safety and environment	
		Materials technologies	
		Metrology Unit	
		Special technologies	
		Standards Coordination Unit	
		Technical Coordination Services	
		Transport and distribution of goods	

Table 2 – External documents (basic structure)			
Directory [Level 1]	Sub-directory [Level 2]	Sub-directory [Level 3]	Sub-directory [Level 4]
10. ISO	10. General documents 20 Circular letters (policy and general)	2000	
		2001	
	30. General Assembly	Working documents	2000
			2001
		Minutes-Resolutions	2000
			2001
	40. CASCO	Working documents	2000
			2001
		Minutes-Resolutions	2000
			2001
	50. COPOLCO	Working documents	2000
			2001
		Minutes-Resolutions	2000
			2001
	60. DEVCO	Working documents	2000
			2001
		Minutes-Resolutions	2000
			2001
	70 Marketing and information	CPSG ISONET	
	80. Council	Working documents	2000
			2001
		Minutes-Resolutions	2000
			2001
	90. TMB	JTAG.1 TAG.4 TAG.8	
		TMB Minutes- Resolutions	2000
			2001
		TMB Working documents	2000
			2001
	98 Statutes, and information on members		
	99 Hotels in Geneva, ISO-CS staff		
30. Other International Organizations	CAC		
	CIE		
	IAEA		
	IATA		
	IEC		
	ILO		
	IMO		
	ITU		
	UN-CEFACT		
	UNIDO		
	WIPO		
	WTO		
	z - Others		
40. Regional organizations	AIDMO		
	ARSO		
	CEN		
	CENELEC		
	COPANT		

Table 2 – External documents (basic structure)			
Directory [Level 1]	Sub-directory [Level 2]	Sub-directory [Level 3]	Sub-directory [Level 4]
40. Regional organizations	ETSI z - Others		
60. Other standardizing bodies			

Table 3 – ISO E-balloting (part of structure)			
Directory [Level 1]	Sub-directory [Level 2]	Sub-directory [Level 3]	Sub-directory [Level 4]
ISO TC 002 Fasteners	ISO TC 002	Drafts Comments Correspondence	
	SC 01 Mechanical properties of fasteners	Drafts Comments Correspondence	
	SC 07 Reference Standards for fasteners (mainly covering terminology, dimensioning, sizes and tolerancing)	Drafts Comments Correspondence	
	SC 09 Hose clamps	Drafts Comments Correspondence	
ISO TC 004 Rolling bearings	ISO TC 004	Drafts Comments Correspondence	
	SC 04 Tolerances	Drafts Comments Correspondence	
	SC 05 Needle roller bearings	Drafts Comments Correspondence	
	SC 06 Insert bearings and accessories	Drafts Comments Correspondence	
	SC 07 Spherical plain bearings	Drafts Comments Correspondence	
	SC 08 Load ratings and life	Drafts Comments Correspondence	
	SC 09 Tapered roller bearings	Drafts Comments Correspondence	
	SC 11 Linear motion rolling bearings	Drafts Comments Correspondence	
ISO TC 005 Ferrous metal pipes and metallic fittings	ISO TC 005	Drafts Comments Correspondence	
	SC 01 Steel tubes	Drafts Comments Correspondence	
	SC 02 Cast iron pipes, fittings and their joints	Drafts Comments Correspondence	
etc.			

Table 4 – Web server file structure (example structure for Web site in three languages)			
Directory [Level 1]	Sub-directory [Level 2]	Sub-directory [Level 3]	Sub-directory [Level 4]
wwwroot 1)	_derived _fpclass _private _themes _vti_cnf _vti_pvt ar_contact.html ar_copyright.html ar_faq.html ar_home.html ar_map.html en_contact.html en_copyright.html en_faq.html en_home.html en_map.html fr_contact.html fr_copyright.html fr_faq.html fr_home.html fr_map.html		Front Page hidden folder Front Page hidden folder Front Page hidden folder Front Page hidden folder Front Page hidden folder Front Page hidden folder Contact page in Arabic Copyright page in Arabic FAQ page in Arabic Home page in Arabic Site map in Arabic Contact page in English Copyright page in English FAQ page in English Home page in English Site map in English Contact page in French Copyright page in French FAQ page in French Home page in French Site map in French
	web_ar 2)	ca cat images info intro links m_systems metrology news pdf prog service	Arabic section: Conformity Assessment Arabic section: Catalogue Arabic section for pictures, videos, etc. Arabic section: Information on standards Arabic section: Introduction to standardizing body Arabic section: Links Arabic section: Management systems Arabic section: Metrology Arabic section: News Arabic section: PDF files Arabic section: Work Programme Arabic section: Products and services
	web_en 2)	ca cat images info intro links m_systems metrology news pdf prog service	English section: Conformity Assessment English section: Catalogue English section for pictures, videos, etc. English section: Information on standards English section: Introduction to standardizing body English section: Links English section: Management systems English section: Metrology English section: News English section: PDF files English section: Work Programme English section: Products and services
	web_fr 2)	ca cat images info	French section: Conformity Assessment French section: Catalogue French section for pictures, videos, etc. French section: Information on standards

Table 4 – Web server file structure (example structure for web site in three languages)			
Directory [Level 1]	Sub-directory [Level 2]	Sub-directory [Level 3]	Sub-directory [Level 4]
	web_fr 2)	intro links m_systems metrology news pdf prog service training	French section: Introduction to standardizing body French section: Links French section: Management systems French section: Metrology French section: News French section: PDF files French section: Work Programme French section: Products and services French section: Training

Notes:

- 1) Default installation directory created by Microsoft IIS 5.0
- 2) The ISO 639 code should be used to indicate the language
(ar represents Arabic, fr represents French, en represents English)

Annex V

IT infrastructures of the national standards bodies of developing countries: results of a survey conducted by ISO/DEVPRO in the year 2000

Objective of the survey:

The survey had the objective of assessing the status of the IT infrastructure/Internet connectivity of a group of developing countries, in order to plan and implement actions with a view to

- ensuring that the NSBs have a minimal level of connectivity;
- improving communication between the NSBs and ISO Central Secretariat;
- providing the NSBs, through facilitated access, with resources such as working documents, e-balloting, etc.

Sample:

Five national standard bodies of developing countries have been interviewed. All the countries considered belong to regions where the overall telecommunications infrastructure is not highly developed.

How the survey was carried out:

The enquiry was subdivided into three stages, as follows:

a) Approach phase

This phase consisted in contacting the countries concerned by telephone to establish what their current infrastructure and its possible future development were.

b) General phase

This phase consisted in sending the NSBs a general questionnaire asking them to describe their infrastructure in greater detail, including hardware and software and number of staff involved in the IT environment.

c) Technical phase

This last phase consisted in sending out as an e-mail attachment a number of documents of different sizes as a test to enable ISO/DEVPRO to assess their current performance in terms of connection, reception, sending and access to the various services provided by the ISO/CS, at various times during the day, specifically in this case around 10:00 and after 20:00.

Results

Approach phase

Our phone contacts enabled us to see that the persons contacted were very interested in the project, but that the biggest drawbacks were problems linked with the IT infrastructure, such as location, premises, etc. In addition, it should be noted that most of these countries are just in the process of restructuring their IT.

General phase

Below are the main findings resulting from the questionnaire:

All members are equipped with workstations using the same operating system (Windows 9x), but with differing processor power, although a majority use Pentiums. One country still uses a few old 486 PCs with Windows 3.1.

A few countries (2 out of 5) have a computer department, with a computer expert providing support.

Only one country out of five has its own Web site, but this is hosted on the site of the Ministry of Industry and Trade. Some of the others have one or more dedicated pages on the Web site of the parent organization.

In all countries, only one station is connected to a switched line (DIAL-UP) to access the Internet.

Summary

	Country 1	Country 2	Country 3	Country 4	Country 5
Dial-up	YES	YES	YES	YES	YES
WEB	YES	NO	NO	NO	NO
LAN	NO	NO	NO	YES	NO
PC->Internet	1	1	1	1	1
kbps	–	28.8	28.8	33.6	28.8
IT department	NO	YES	NO	YES	NO

Technical phase

The following are the results of the tests carried out by e-mail.

Note: the size of the Small.doc document file is about 90 kB
the size of the Large.ppt PowerPoint file is about 700 kB
the size of the small ISODOC document is about 90 kB
the size of the large ISODOC document is about 250 kB
the size of the small ISOTC document is about 200 kB
the size of the large ISOTC document is about 500 kB

	YES/NO	Time: best case	Time: worst case
Open Small.doc	YES	5 s	25 s
Open Large.ppt	YES	3 s	30 s
Send Small.doc	YES	19 s	60 s
Send Large.ppt	YES	2 min. 40 s	6 min 20 s
ISO ONLINE	YES (NO access in one case)	5 s	50 s
SDIS	YES (NO access in one case)	15 s	2 min 30 s
ISODOC	YES	15 s	40 s
Open Doc Small	YES	20 s	5 min 30 s
Open Doc Large	YES	25 s	8 min 40 s
ISOTC	YES (Access not granted in one case)	8 s	60 s
Open Doc Small	YES (Access not granted in one case)	30 s	90 s
Open Doc Large	YES (Access not granted in one case)	1 min. 30 s	Error

Conclusions

All countries involved had dial-up access to Internet and:

- were able to send and receive messages with attachments of various sizes generally without problems;
- had access to all services made available by the ISO/CS provided they had been granted permission;
- it was interesting to note that in many cases the difference in connection time between daytime and evening was minimal.

These findings are very important because they show that even with basic infrastructures and minimal levels of connectivity it is possible to access and exchange information electronically.

Performance and connectivity:

Performance could be improved by raising the connectivity level, i.e. by improving Internet access through the use of dedicated (leased) lines or ISDN (if ISDN is available in the country: for most of the countries considered in the survey this is not yet the case).

For connection to Internet, three connection levels can be considered:

- 1) The workstation is connected to the Internet via a modem and a dedicated line and is not connected to a local network.
- 2) The workstation is connected to a local network where only one station has access to the Internet via a modem and a dedicated line.
- 3) The workstation is connected to a local network where all stations can access the Internet via a router.

All the NSBs that were contacted had a level 1 connection, but most of them are upgrading to level 2.

Web site:

The installation of a Web site (preparation of a pre-defined package by the ISO/CS, hardware, software and documentation included) was considered an asset by all the countries, in that it would enable them to enhance their capacity to provide basic information and services to their local communities. For NSBs who do not have access to a dedicated line, such Web sites would be hosted.