Chapter 2
Characteristic of models based on the ISO 9000 family of standards, with reference to adaptations for educational institutions

2.1 General observations

More and more vocational training institutions (VTIs) in Latin America and the Caribbean are applying international standards from the ISO 9000 family to develop quality management systems. These standards have evolved from the ISO 9000:1994, which put the emphasis on quality assurance, to the 9000:2000 version, which is more geared to quality stemming from a commitment by the institution to continual improvement. The ISO 9000 family of standards is oriented to quality management by processes and not to the intrinsic characteristics of the products or services that the institution offers, and the institutions that adhere to these standards do so "under the supposition that an organization which conforms to the principles implicit in the quality standard will consistently ensure the quality of its products and the satisfaction of its customers."[1]

These standards have been drawn up to assist firms of all kinds and all sizes to implement and operate efficacious quality management systems.[2] Thus the ISO 9000 Standard describes the basic elements of quality management systems and specifies their terminology, while the ISO 9001 specifies the requirements for quality management systems "applicable to all organizations that need to demonstrate their capability to provide products that meet their customer's needs and the regulations that apply to them."[3] These standards are applied in organizations for certification and contract purposes, and they are centred on the effectiveness of the system to satisfy the customer's needs.

[1] ILO/Cinterfor, *Quality, relevance and*…, op. cit.
[2] The Colombian Institute of Technical Standards and Certification (ICONTEC - Instituto Colombiano de Normas Técnicas y Certificación), "Norma Técnica Colombiana NTC-ISO 9000 Sistemas de Gestión de la Calidad. Fundamentos y Vocabulario", Bogotá, 2002.
[3] ICONTEC, "Norma Técnica…", op. cit.

The ISO 9004 Standard, on the other hand, is not geared to certification or contracts, it is recommended as a guide for organizations that are seeking to continually improve their performance by using guidelines that take account of the effectiveness and efficiency of quality management systems, and the ISO 19011 Standard provides guidance about audits of quality and environmental management systems.[4]

The countries that subscribe to these international standards adapt them to specific activity sectors. This does not involve modifying the essential elements of these international standards, but additional elements are added to make it easier to apply them. For example, the Chilean NCh 2728 Standard for the certification of technical training organizations (OTEC) and the Colombian Technical Standard for Quality in Public Management (NTCGP 1000:2004) are developed versions of the ISO 9001:2000 Standard. This also applies to the guidelines designed to facilitate the application of this standard in institutions in the education sector such as the IWA 2, which was developed by an international ISO workshop coordinated by Mexico, the Colombian GTC 200, which was developed by the ICONTEC, or the Argentine Standardization Institute's IRAM 30000.

2.2 Methodological aspects

An organization that wishes to implement a quality management system to bring about continual improvement in its performance will have to apply the following eight **quality management principles** from the ISO 9000 family of standards:[5]

a. **Customer focus** (to understand current and future customer needs, and to meet customer requirements and expectations).

b. **Leadership** (unity of purpose and direction of the organization, commitment).

c. **Involvement of people** ("their full involvement enables their abilities to be used for the organization's benefit").

d. **Process approach** (the management of activities and resources as processes: "a group of activities that are mutually related or that interact, which transform inputs into results").

[4] Idem.
[5] Idem.

e. **System approach to management** (contributes to effectiveness and efficiency in achieving objectives).

f. **Continual improvement** (as a permanent objective of the organization).

g. **Factual approach to decision making** (decisions based on the analysis of data and information).

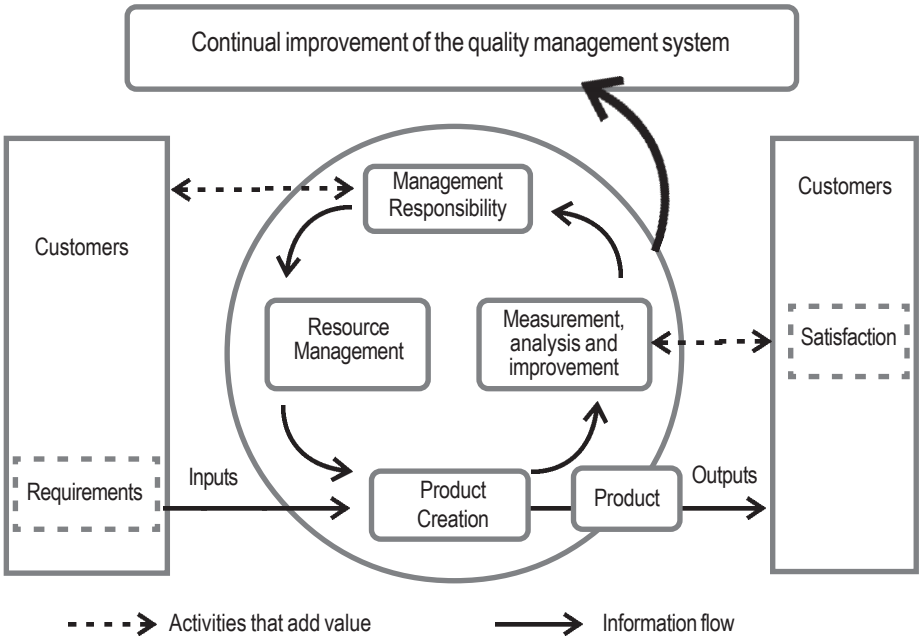
h. **Mutually beneficial supplier relationships** (enhance the ability of both to create value).

The system develops by **stages** which include identifying clients' needs, establishing the organization's policy and quality objectives, determining the processes and responsibilities needed to achieve the quality objectives, providing the resources for these, establishing and applying methods to measure the effectiveness and efficiency of each process, and establishing and applying methods to continually improve the system.

Note that the **process approach** is so important in the ISO 9000 model that the organization must systematically identify and manage the processes employed, the interaction between them and their implications in terms of management. The "inputs" of the process will be basically made up from the perception of the customers' (and other interested parties') requirements, and the evaluation of results has to be based on information about the perception of these needs in terms of satisfying needs and expectations.

A survey of the organization's processes means considering aspects like understanding and complying with the requirements of the institution, analyzing the processes in terms of the value they contribute to achieving the organization's objectives, and establishing their sequences and how they interrelate.

Figure 1
Model of a quality management system based on processes[6]



A quality management system that is properly constituted and in full operation must have a **policy** and some quality **objectives** as a framework of reference to guide the organization. Both of these are basic inputs for top management to carry out its mission to create an atmosphere in which the personnel are totally involved and in which the quality management system can operate effectively.

Besides this, for the quality management system to operate fully, criteria, procedures and methods have to be established to ensure that it works properly, that resources and information to keep it running are available, and that measurements are made and action taken to achieve the planned results and maintain continual improvement.[7]

The steps that an organization has to take for its quality management system to receive certification under the ISO 9001:2000 Standard can be summed up, in simplified form, as follows:

[6] Idem.
[7] Uruguayan Training and Production Centre (CECAP - Centro de Capacitación y Producción): "CECAP Competencias y…" op. cit.

a. Decision by top management.
b. Setting the organization's quality policy and objectives.
c. Achieving commitment from the different levels involved.
d. Planning the setting up of the system (this can be formulated as a project).
e. Forming and training the work teams.
f. Self evaluation in accordance with the requirements of the standard.
g. Diagnosis of each process.
h. Standardization, documentation and implementation of the processes.
i. Establishing a quality manual.
j. Identifying which processes have priority for certification purposes.
k. Carrying out internal quality audits.
l. Taking corrective action.
m. Certification auditing by the accredited certifying body.
n. Certification by the authorized certifying body.
o. Maintaining and improving the system.

2.3 Functioning and advantages of applying the ISO 9001:2000 model in educational organizations and VTIs

As was mentioned above, various countries have been adapting international standards to apply them in educational institutions, and many VTIs in the region and individual training organizations have also been progressing in the certification of their centres and administrative and support services, using this standard or one of its local equivalents.

A large part of the experience in this area prior to 2003 was dealt with in ILO/Cinterfor's Technical Office Papers No. 12. This presented a series of case studies, namely the SENAI, the SENAC and the SENAR in Brazil, the SENCE for the technical training organizations in Chile, the SENA in Colombia, the INTECAP in Guatemala, the CONOCER in Mexico and the SENATI in Peru.

Since that time the number of VTIs that have decided to work towards ISO 9001:2000 standard certification has increased, and the list includes the Peruvian National Service of Occupational Training in Industry (SENATI - Instituto Nacional de Adiestramiento en Trabajo Industrial), the National Institute of Tech-

nical Vocational Training (INFOTEP - Instituto Nacional de Formación Técnico Profesional) in the Dominican Republic, and the National Training Institute (INA - Instituto Nacional de Aprendizaje) in Costa Rica. In addition, progress has been made by the National Training Service (SENA - Servicio Nacional de Aprendizaje) in Colombia, which grew from three certified centres in April 2003 to 18 in November 2005 (see box at the end of this chapter).

As was mentioned above, the guidelines to implement the ISO 9001:2000 Standard in institutions in the educational sector involve adaptations that do not modify essential components but introduce elements to facilitate application, but it should be borne in mind that there are big differences as regards the extent and scope of the changes. (It is not to our purpose here to deal with these differences in detail since they are numerous and extensive. The reader may research them directly if he wishes, by consulting the documents referred to in the footnotes, boxes and annexes of this book).

Quality management systems vary from one institution to another depending on the different educational objectives, teaching methods and administrative practices is each organization. However, all the institutions involved will have to **define their processes**, such as those for the provision of the pedagogic capability of the educators; the development, revision and updating of study plans and programmes; the admission and selection of candidates; follow-up and evaluation of the teaching-learning process; the final evaluation used to award the learner an academic qualification or certificate of competencies; support services for the teaching-learning process; supporting the learner until he can successfully obtain his academic qualification or certificate; and the measurement of educational processes.[8]

Similarly the **top management** (the person or group of persons in charge of the overall direction and control of an educational organization) should identify the factors that satisfy the customer's needs and expectations.

Some educational institutions are resistant to the ISO 9000 family of standards, and one of the reasons for this is that they baulk at the word ***customers*** to describe the people that their work and their mission is directed towards because they feel that this term has commercial overtones and is therefore not appropriate in the field of education. However, it is important to note here that the development of special guidelines to facilitate the application of these inter-

[8] Tamayo Taipe, Miguel Ángel: "Presentación de la IWA 2", prepared by the General Coordinator of the administrative unit of the Project to Modernize Technical Education and Training, from the Mexican Public Education Secretariat (PMETYC-SEP) and the IWA 2 Secretary (for further information, see: www.sinoe.sep.gob.mx , ventana ISO IWA 2).

national standards in educational organizations has made it possible, both conceptually and operationally, to accept this term (which originally sprang from commercial or economic activity) to denote the beneficiaries and actors in educational processes.

According to the ISO 9000:2000, the **customer** is the organization or individual that receives a product. In this context, it is stated in the IWA 2 that in education or training the customer may be the learner *(the consumer*) or the person or organization financing the trainee, which could be the learner himself *(the customer or purchaser)* or the person or organization that ultimately benefits from the learning the trainee acquires *(the final user)*. In the IWA 2 this definition is supplemented with the addition of the interested party *(the person or group that has an interest in the performance or success of an organization, in accordance with the ISO 9000:2000)*, who might be the customer, parents' associations, other connected educational organizations or society in general.

According to the Colombian GTC 200, customers may be *"students, parents of families or others who do courses, organizations that contract educational services, employers, educational establishments that receive students from a different or lower training level, or organizations or persons that benefit from the education acquired."*[9]

According to the Chilean 2728 standard, the customer is *"the worker, enterprise, employer, internal customer (inside training organizations themselves), organization or group of enterprises that solicits a training service. The authority in overall charge can also be seen as a customer."*[10]

Lastly, according to ILO/Cinterfor itself, "*in the case of vocational training the 'customer' is the different actors, including the productive system, enterprises, organizations, the family and society in general, into which the population that is trained will have to insert. And also, obviously, the participants themselves, with individual characteristics and needs. The 'internal customers' also have to be borne in mind, these being the members or teams in the institution."*[11]

[9] The Colombian Institute for Technical Standards and Quality (ICONTEC - Instituto Colombiano de Normas Técnicas y Calidad), "GTC 200 Guía para la implementación de la Norma ISO 9001 en establecimientos de educación formal en los niveles de preescolar, básica, media y en establecimientos de educación no formal", Bogotá, 2005.

[10] The Chilean National Standardization Institute (INN - Instituto Nacional de Normalización de Chile), "NCh2728 Organismos Técnicos de Capacitación-Requisitos", Santiago, 2002 (at: www.chilecalidad.org).

[11] ILO/Cinterfor, *Quality, relevance and...*, op. cit.

In the ILO/Cinterfor reference document about Quality, relevance and equity: an integrated approach to vocational training, there is an extensive study of the consequences and implications that the application of ISO standards for quality management systems have had in recent years in the sphere of vocational training. Some of these are as follows:[12]

a. "Some VTIs have approached quality certification through their central offices, and from there they have expanded the application to their different services in general and their different centres in particular. Other VTIs started at their centres, first experimenting with the introduction of the quality focus and seeking certification for specific centres, services or processes, and then moving on from there to involve their whole structure."

b. Improving the quality of services becomes an instrument to guarantee the quality of results, and in the case of the VTIs in question this is expressed in the ongoing updating of the training offer, the pursuit of pertinence in relation to the social and economic context and to the participants, and improving opportunities for all persons to access knowledge.

c. Adopting the principles of quality, and the consequent progress through the process of seeking certification, generate valuable results in organizational learning since people's participation in the structuring, setting up, improving and documenting of processes leads these people to ask questions, to make the procedures explicit, to document them and then apply them, in a group work situation that calls for the application of new knowledge and previous experience, and demands and develops new kinds of learning.

One consequence of adopting this focus is that the institutions have to determine the quality of their pedagogic, support and administrative processes, and this means they have to confront questions about the relevance of the curriculum, the competence of teaching, administrative and technical staff, their linkages with employers to identify training needs, the suitability of classrooms and workshops for the training purposes in question, and the quality of their processes to register, evaluate and certify trainees and then insert these people in the target market.[13]

In the last few years some VTIs in the region have made good progress in developing their quality management systems under the ISO 9000 Standards. Here we present a sample of what these organizations themselves have to say about the advantages of applying this system:

[12] Idem.

[13] www.cinterfor.org.uy/calidad 2005.

INA, Costa Rica: Improvements in the quality of the services offered, orientation to the customer, the standardization of processes, personnel who take more responsibility for quality, and worldwide recognition through ISO certification (www.ina.ac.cr).

INADEH, Panama: The quality assurance project has led to the training of staff, the writing of a quality manual, investment in infrastructure and equipment, the search for key factors, and clarification of mission and objectives. All this has resulted in a qualitative improvement in the institution's vocational training (www.cinterfor.org.uy/calidad).

CECAP, Uruguay: The recognition of processes linked to the main thrust of the institutions functions, recognition of the need to have accurate and systematic information as a base for decision making, the definition of improvement targets and goals, the promotion of a strong global commitment to the criteria of quality, and the contribution of a process guide to self-analysis within the institution (CECAP, op. cit., p. 43).

The Colombian Technical and Scientific Standards Institute (**ICONTEC** - Instituto Colombiano de Normas Técnicas y Científicas) has stated that *"The advantage of the ISO 9000 over other models is that it is recognized all over the world, in more than a hundred countries in Europe, in Asia and in North, Central and South America."* Certification has meant that the institution now projects an image of high quality educational services abroad, enjoys the confidence of society in general, and guarantees compliance with legal requirements. It has also benefited in that it is conscious of and focused on attaining its objectives, its documentation and how this is applied as a tool has improved, it is geared to objectives that add value, and communication between administrative and teaching staff and the educational community has improved. In addition, the costs of non-added value have been reduced, a culture focused on continual improvement has been implanted, and now there is a culture of measurement, analysis and improvement not only within the institution itself but also in all the organizations it cooperates with. Besides this, the institution has benefited from acquiring learning in that staff competencies have improved, processes and methods have been defined and it is possible to accumulate knowledge. Another advantage is effectiveness, since productivity has been raised and resources are better used. There is also greater efficiency because efforts, methodologies, objectives, indicators and projects have been harmonized, and a recognized international educational level is in use.[14]

[14] Tobón, Fabio: "La calidad, un solo lenguaje para la excelencia". Presentation by the Executive Director of the ICONTEC at the "Foro Internacional de Modelos de Calidad y su aplicación en preescolar, básica y media", organized by CONACED, Bogotá, 2005 (CD archive).

The **Norman Wiener University in Peru** has pointed out other advantages besides those mentioned above, (a) standardization in procurement and logistics, which facilitates interaction with suppliers (quantity, quality, opportunity, support, training, etc.), (b) preventive maintenance of laboratory equipment and didactic materials, which has significantly reduced the need for repairs, (c) an improvement in the quality, and a saving in attention time, in the main academic-administrative services.[15]

The Chilean Quality Standard for Technical Training Organizations (OTEC)

The institutional structure of training in Chile is organized around a decentralized technical State body, the National Training and Employment Service (SENCE - Servicio Nacional de Capacitación y Empleo), connected to the Ministry of Labour, which implements public policies and instruments for the labour market and labour guidance. To do this it runs a tax exemption scheme, an incentive that the State offers to enterprises to promote personnel training, and also a training scholarship programme financed with public resources.

The actual execution of training comes under the Technical Training Organizations (OTEC), which represents a wide range of public and private institutions that accede to contracts to run the courses programmed by the SENCE when these are put out to tender.

There is also an OTEC register, to which each interested organization has to submit a series of credentials for accreditation. Besides this, the SENCE has implemented a mechanism to support quality management and continual improvement in the OTEC. This is the Chilean 2728 Standard, which is a customer-focused process management system that involves continual improvement and is based on a determinate system of standard documents.

The Chilean NCh 2728 Standard was designed to be applied in Chile. It sets out the requirements that the Technical Training Organizations (OTEC) must satisfy to certify their quality management system (Law 19.967). This standard contains requirements from the ISO 9001:2000 Standard adapted for training.

[15] Lip Licham, César: "Experiencia de la Universidad Norman Wiener en la implantación del Sistema de Gestión de la Calidad". Presentation by the University Rector at the 4th Latin American Congress on Quality in Education, SENAI, Brazil, September 2005. http://www.cinterfor.org.uy/calidad

In order to satisfy the requirements for certification under the NCh 2728 standard, the OTEC have to:

- Continually demonstrate improvements in their management, which serves to guarantee the quality of the training they offer to customers.
- Demonstrate that their competitive capability and their special advantages in the training market have improved.
- Demonstrate that they are complying with the NCh 2728 Standard and thus eligible to be listed on the National Training Organization Register authorized by the SENCE.

SENCE's work to promote quality has made for dynamic interaction with the OTEC, and there is even a set of guidelines to help the OTEC understand and implement quality management based on the NCh 2728 standard.

Source: http://www.sence.cl/

INFOTEP, Dominican Republic
Certification based on the ISO 9001:2000 Standard

"In the Dominican Republic the National Institute of Technical Vocational Training (INFOTEP - Instituto Nacional de Formación Técnico Profesional) has crowned nine months of hard work by obtaining ISO 9001:2000 certification. This will give the institution the status of a world class organization, recognized for the high quality of its services and the reliability of its administrative processes. Auditors from the certifying enterprise SGS of Panama, which is accredited by UK in England, worked for five days to analyze all the institution's procedures that were geared to this target, not only at the national head office but also at the regional management units, and concluded that since the INFOTEP satisfied all the necessary international requirements it should be recommended for certification under the ISO 9001:2000 standard."[16]

[16] INFOTEP, Bulletin INFO-Expreso, 12 September, 2005. www.cinterfor.org.uy/calidad

To achieve certification, the INFOTEP formed a strategic committee and national and regional quality management system teams, and systematically applied the requirements of the ISO 9001:2000 Standard organized in accordance with the PDCA system (Plan, Do, Check, Act). It drew up a plan to *"...improve communication, reduce costs, eliminate duplication of work, update didactic materials, audiovisual and other equipment and computers, improve the use of vehicles, standards and regulations, review and improve the use of physical space, the application of the 5S and efficiency on the job."*[17]

With support from the Japan International Cooperation Agency (JICA), a number of workshops about the 5S were held with the organization's personnel. The 5S programme *"...is a technique which originated in Japan that synthesizes a business management philosophy and is aimed at laying solid foundations for a total quality programme... it is based on cultivating work habits that contribute to increased productivity, individual well-being and customer satisfaction."* The 5S consist of the following:

Seiri: Sort out, organize and classify: separate the useful from the useless.

Seiton: Set things in place: keep what is utilized most frequently in a set place near at hand.

Seiso: Shine – clean everything and keep it clean.

Seiketsu: Standardize activities to keep equipment, tools, furniture etc. in good condition.

Shitsuke: Sustain discipline – comply with the established laws, procedures, standards and regulations, without the need for supervision.[18]

After applying and monitoring the 5S, the appropriate internal audits and the external audit carried out at the national head office and the regional management units by the Panamanian quality management system certifying enterprise (accredited by UK in England), the INFOTEP was duly awarded certification, the scope of which is specified in the document MX 05/0691.

[17] INFOTEP: Integración Tecnológica Journal, May-August, 2005: "El INFOTEP muestra experiencia en la mejora continua a través de 5S", interview with INFOTEP quality management representative Susana Sierra.

[18] INFOTEP: "For the Booklet", Quality Management System Information Bulletin, Year 1, No. III, 1 to 15 April, 2005 ("INFOTEP participa en taller sobre 5S y Procesos de Cambio Organizacional").

The National Training Institute (INA) in Costa Rica, October 2005
What is the quality management programme?

The quality management programme comes under the auspices of the Executive Presidency, which is responsible for coordinating INA quality management system activity.

The National Training Institute (INA - Instituto Nacional de Aprendizaje) in Costa Rica has been developing a quality management system based on the ISO 9001:2000 Standard in order to continuously improve its processes and to be able to better satisfy its customers and improve the training it offers. To achieve this, training has been coordinated, processes have been revised, diagrams and documents have been produced and activities have been standardized in order to give the personnel a clear picture of their tasks and responsibilities and of the contribution each and every individual is making towards improving the product or service in question.

The quality management system is a tool that enables the INA to focus all its activities on the crucial task of evaluating its own capability to satisfy the regulatory requirements, the customer's requirements, and the institution's own needs. The system also generates improvement opportunities through following-up, measuring and evaluating the organization's processes.

The main advantages of having a quality management system are that it improves the quality of the services offered, sharpens orientation to the customer, introduces the standardization of processes, leads to more responsible and better-quality personnel, and provides recognition in the world thanks to ISO certification.

Source: www.ina.ac.cr

Certification of the SENATI in Peru with the ISO 9001:2000 and 14001:1996[19]

The Peruvian National Service of Occupational Training in Industry (SENATI - Servicio Nacional de Adiestramiento en Trabajo Industrial) obtained its first ISO 9001 certification (the 1994 version) in the year 2000.

In 2003 it obtained certification for its *"Integrated Management System"*, which is made up of the ISO 9001:2000 quality management system and the ISO 14001:1996 environmental management system. Certification was awarded after the Bureau Veritas Quality International body for international certification carried out an external audit of its national management and the various operational units the SENATI has in Peru.

The **scope** of these certifications covers services in the following areas:

- The design of vocational training programmes and courses.
- Vocational training services and employment agency services at the 41 operational units in the country.
- The provision of non-destructive testing and automotive manufacture and technical checking services at the SENATI head office in Lima-Callao.
- Business consultancy services for small and medium enterprises at the SENATI head office in Lima-Callao.

In adopting a **Management System Policy**, the SENATI has committed itself to permanently satisfying its customers' needs as regards vocational training and also in the field of technical and business services. To achieve this, the SENATI:

- *"Manages its processes systematically with a continual improvement focus so as to reach the levels of quality and satisfaction that its customers expect, these being learners, participants, users and enterprises in a range of economic sectors.*
- *Promotes not only the vocational development but also the well-being, health and job security of its staff so as to keep the institution running in a secure, efficient, effective and satisfactory way.*

[19] Based on information available at the web page: www.senati.edu.pe

- *Complies with all legislation, rules and environmental and occupational health and safety regulations applicable to its operations, and also complies with the management system requirements laid down in international standards and in the institutions own standards.*
- *Renders its services in such a way as to avoid polluting the environment, make rational use of resources, safeguard occupational health and safety and improve performance. It has incorporated these elements into its curricular content and the vocational training it offers."*

In its 2003-2005 strategic plan, the SENATI defined the core elements that provide the foundation for its operations, which are guided by the **institution's values**, namely a work, leadership and teamwork culture. These core elements are as follows:

- Orientation to demand, to the customer
- Quality
- Human resources development
- The management of knowledge and innovation
- Economic sustainability

"After the core elements were defined, **15 main processes** were identified and defined, under the premise that control of these processes will ensure the efficiency and effectiveness of the institution...

MAIN PROCESSES IN THE SENATI

MANAGEMENT PROCESSES (5): To define and implement the institution's policy and strategy. This provides a frame of reference for all the other processes.

OPRERATIONAL PROCESSES (3): These constitute the sequence of adding value, from the needs-identification stage through to after-sales service.

SUPPORT PROCESSES (7): These give support, mainly to operational processes.

MANAGEMENT				
Policy Guidelines	Strategic Planning	Operational and Budget Planning	Marketing	Review by Management

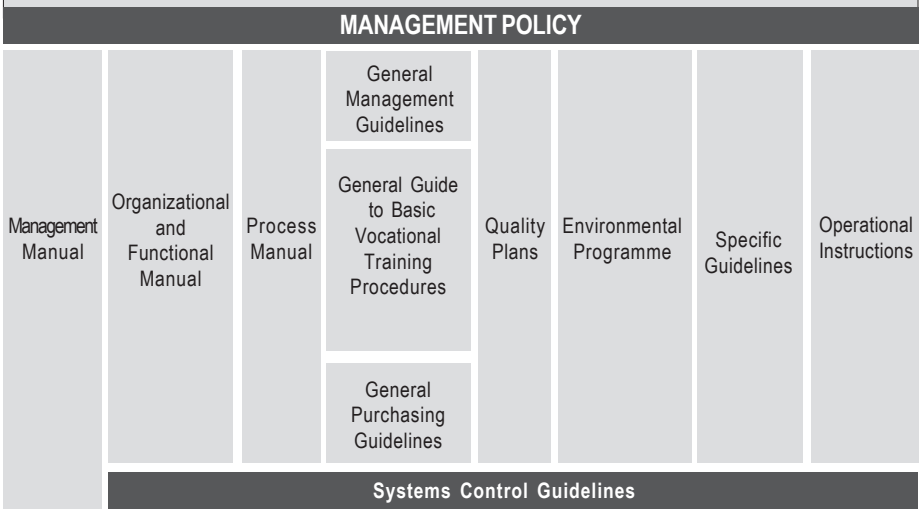
OPERATIONAL		
Pedagogic Technical Design	Rendering of Services	After-Sales

SUPPORT		
Information Technology	Human Resources Management	Administration of Goods
Supply	Financial Processes	Customer Relations
	Internal Auditing	

GENERAL SERVICES	Internal and External Communications
	Risk Prevention and Emergency Services

DOCUMENTATION SYSTEM OF THE SENATI INTEGRATED MANAGEMENT SYSTEM

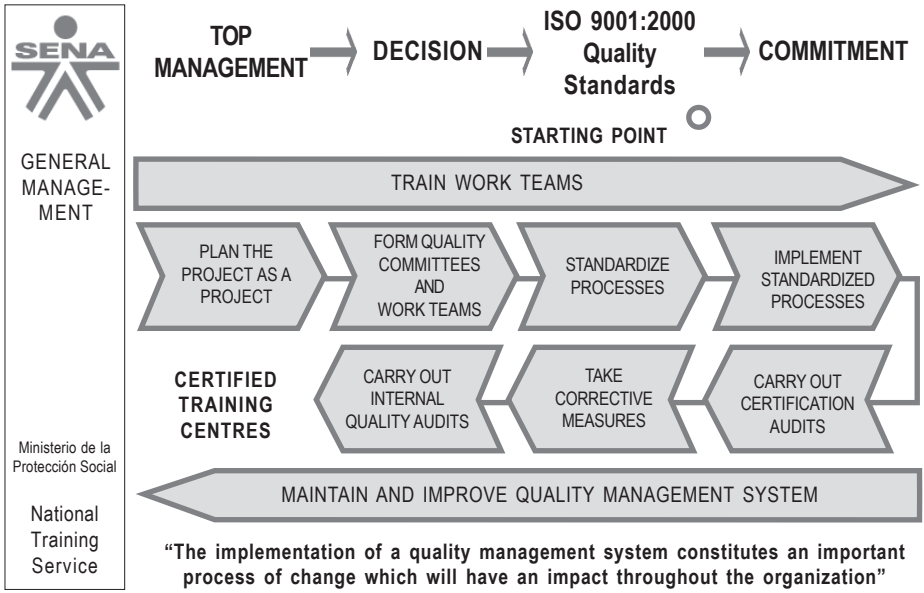
- This is part of, and meets the needs of, the quality management and environmental management systems (ISO 9001 and ISO 14001)
- It is oriented to processes and their inter-relationships
- It is focused on the customer, from identifying client needs to degree of satisfaction with the service rendered
- It orients the institution's activities towards preventing pollution and the rational use of resources
- It fosters personnel development as regards raising awareness, training and competency
- The management review emphasizes measuring, following up, analyzing and improving the effectiveness of the management system processes as a whole



2.4 Recent quality management systems experience of the SENA in Colombia, as an example

In 2003 the SENA obtained ISO 9001:2000 certification for three of its training centres at the Antioquia regional office, and also for the planning sub-management office in that region. Later on it formulated its 2002-2006 strategic plan entitled "SENA: Knowledge for all Colombians", and Law No. 872 (2003) was passed "whereby the quality management system is installed in the executive branch of the Presidency and in other bodies rendering services" (see Annex 2.1). The SENA subsequently undertook the task of implementing quality management systems throughout its organization, including its national administration, regional administrations and training centres.[20]

Chart 1
Process to implement the quality management system in the SENA



"The implementation of a quality management system constitutes an important process of change which will have an impact throughout the organization"

[20]This summary is based on the power point presentations that the SENA National Quality Committee used to train personnel in regional committees and centres. These were "Sistema de Gestión de la Calidad - Foco: Centros de Formación", the SENA Quality Committee, Planning and Corporate Guidance Management, Bogotá, December 2004, and "Sistema de Gestión de la Calidad", September 2005. The three charts are included by the kind permission, sent by e-mail on 18 November 2005, of the Planning Director of the SENA, who is also Coordinator of the SENA National Quality Committee.

The SENA set the following goals for its quality management system:

- To set up and run the quality management system in 114 vocational training centres, 33 regional offices and the head office.
- To strengthen the culture of quality.
- To obtain certification for the integrated attendance vocational training process at all its training centres by June 2006.
- To obtain certification for the management processes at regional offices by June 2006 at the latest.
- To obtain certification for the management processes at the head office by June 2006 at the latest.

As long ago as 2003 the SENA had already set to work on the task of giving form to its institutional processes and improving them to the strategic, tactical and operational levels the institution required. This task was one of the most important inputs for implementing a quality management system at the head office, in the regions and at the training centres. Another crucial task was to draw up a *Manual of Processes, Procedures and Instructions to Draw up, Codify and Control Documentation on Processes and Procedures*. Staff in the different branches of the organization participated in putting together and checking this manual, and as it took shape between 2003 and 2005 it was brought into use by the work teams. It received formal approval from top management on 30 June 2005 in Resolution No. 1,156, which was issued by the SENA General Manager (see Annex 2.2). It meets the requirements for a quality manual set out in item 4.2.2 of the ISO 9001 as it contains descriptions of the scope of the management system and includes all the documented processes and procedures in the organization. It also covers the procedures and instruments to keep the system permanently up to date.

The steps the SENA took to develop its quality management system can be summed up as follows:

- Top management decided to implement a system based on the ISO 9000 family of standards, and to obtain certification for all the organization's centres by 2006 at the latest.
- The policy, objectives and scope of the quality management system were defined.
- The corresponding commitment was made at all levels in the organization.
- Quality committees and work teams were set up.
- The process was planned.

- The committees and work teams were trained.
- The processes were standardized.
- The processes were implemented.
- Internal quality audits were carried out.
- Corrective action was taken.
- The certification audit was carried out.
- There was ongoing maintenance and improvement of the quality management system.

The setting up of the committees was supported by a 2004 top management ruling, Resolution 2,516 (see Annex 2.3) whereby the functions of SENA's quality management system national, regional and training centre committees were defined. The training that the committees and work teams received included raising awareness, knowledge of the standard and process analysis.

In the standardization of processes, 15 macro-processes, 51 processes and 157 procedures in the whole organization were identified and documented. These were officially agreed and stated in the *Manual of Processes and Procedures* that was adopted in line with Resolution 1,156 of 2005. The macro-processes were divided into 4 corporative ones, 4 mission and 7 support (see the macro-processes map table at the end of this section).

Each training centre was required to formulate a plan of action to implement its own quality management system within the parameters laid down by top management (policy, objectives and processes), and these plans of action had to have the following basic scope:

- Study the macro-processes and processes defined and determine the processes the centre would work on.
- Define the process in the centre's scope.
- Diagnose against the requirements of the standard.
- Diagnose each process (with verification lists supplied by central organization to be applied by each process leader).
- Draw up detailed work plans for each process.

The process leaders were assigned the following responsibilities:

- Let those responsible for executing a process know how it had been characterized (objective, inputs, products, resources, regulations, documentation, registers).

- Make those responsible for the processes execute them in the correct way and complete the required documentation.
- Analyze and collate information about how the processes operate (design and draw up the formats (registers) and process indicators at the centres) and give feedback on the system.
- Follow up and evaluate the improvement plan made for each process.
- Establish corrective and preventive action for the process and see that it is executed.

Once the internal quality audits have been carried out and corrective action implemented, the next step is to coordinate concerted action with the certifying body for the appropriate certification audit to be carried out.

By November 2005 the processes that had been certified under the ISO 9001:2000 standards were the design, development and rendering of attendance vocational training services at 13 training centres in the Antioquia regional office and 5 centres in the Caldas regional office. SENA's other vocational training centres are in the implementation phase (see Annex 2.4).

Chart 2
Continual improvement in SENA's quality management system

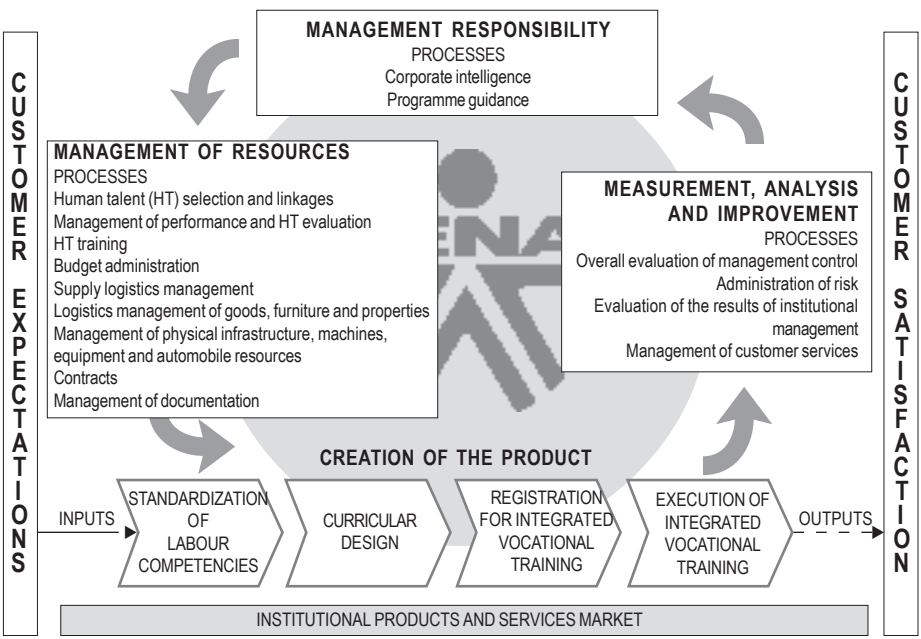
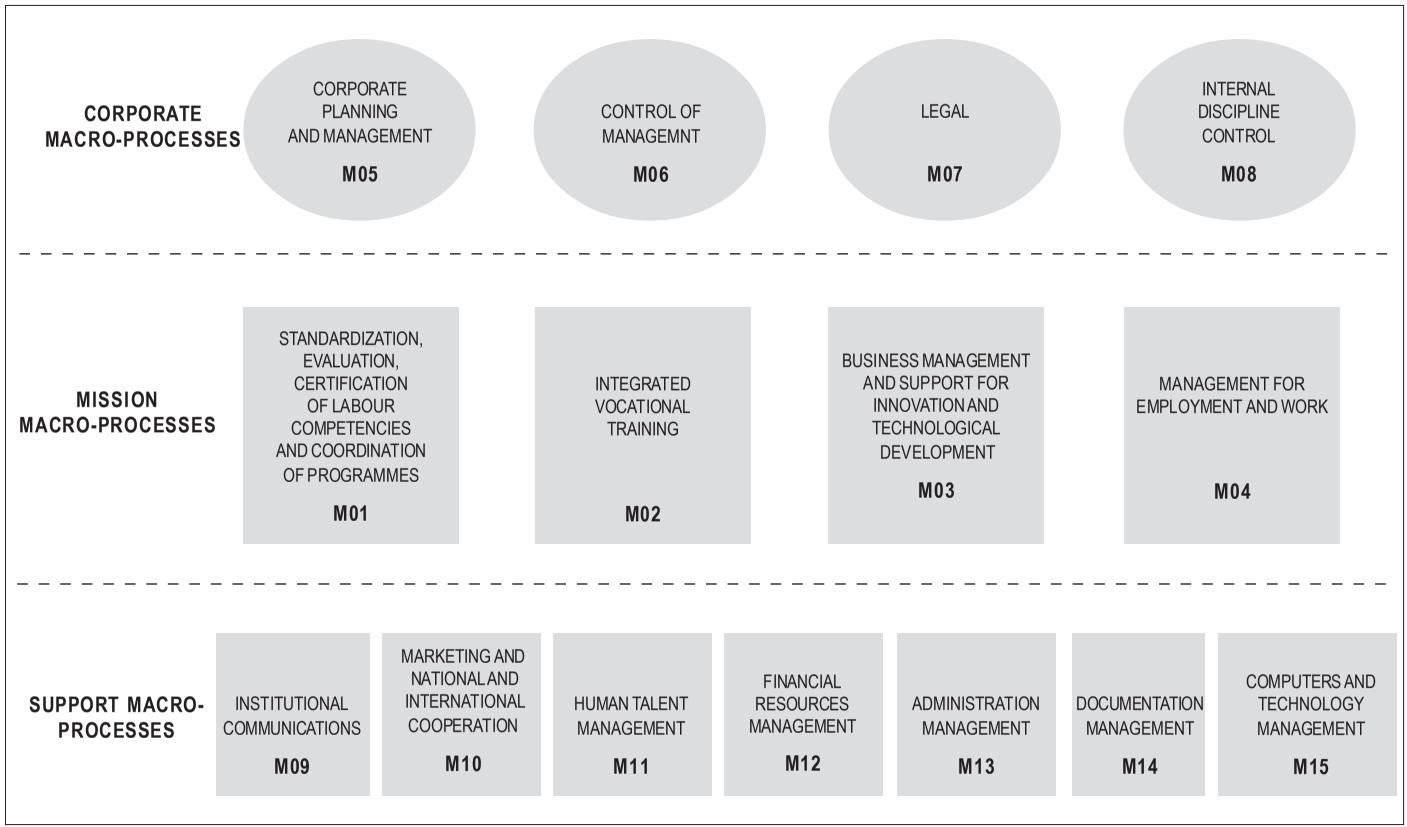


Chart 3
Map of SENA macro-processes and processes



2.5 Implementation of the quality management system in INFOTEP (Dominican Republic). Chronological account

In October 2004, the new authorities of the institute evaluated the challenges that it was facing as a vocational training institution. It was decided that INFOTEP would be made into a world class institution, and the way to do this would be implement a quality management system in line with the requirements of the ISO-9001:2000 Standard. This would involve restructuring the whole institution.

First, an area was set up to take charge of managing this system, and for this INFOTEP took advantage of a Japanese expert from the Japanese International Cooperation Agency (JICA) who was visiting the institute. A consultant was brought in, management selected their representative for the system, and a strategic committee that included all the managers and the quality team was set up for the quality management system.

In November and December of 2004 a work plan was drawn up for 2005, and the people to document the system were chosen.

In addition:

- The procedure that would govern the system was defined.
- This plan was submitted to the strategic committee and put into operation.
- The scope of certification was defined as follows: "Design, develop, execute and evaluate technical vocational training services, consultancy and enterprise technical assistance services, and calibration and/or measurement instrument verification services."

January 2005:

- The staff to document the system were trained, and the documentation process went into operation.

February 2005:

- A national campaign called "For the Booklet", headed by the General Director, was launched to make personnel in the institution aware of the new initiative, and this included an allegorical song with a "merengue" rhythm.
- Information and educational bulletins about the standard were issued every fortnight.
- There were hats, flags, badges, t shirts and so on to advertise the campaign, and these featured the campaign mascot "Isoin".

- Internal competitions were held about aspects of the quality policy, the mission, the vision, the values and aspects of the standard, etc.

At the same time, documentation about the procedures was produced and circulated among the managers to be checked, modified and revised, and documentation was also produced about quality objectives, the quality policy and the quality manual. Offers came in from quality certification bodies; these were evaluated and the firm SGS Panama was selected.

In April 2005 the documentation on the procedures required by the standard was sent to SGS Panama so the written or document audit could be carried out.

While this was in progress the personnel of INFOTEP were being intensively trained in different aspects of the ISO standard and the quality management system. This training took place on courses and at workshops, and covered the following subjects:

- Documentation of the quality system, two workshops with 90 participants.
- Training for internal quality auditors, with 109 participants.
- Design and analysis, two courses with 39 participants.
- Uncertainty calculation, with 19 participants trained.
- Statistical tools, 5 workshops with 95 participants.
- The 17025 standard, the ISO 9000 and 9001, with a total of 776 participants.
- Process-based management, with 49 participants.
- Reinforcement course for internal quality auditors, 33 participants.
- Indicators for the quality management system, with 26 participants.
- The 5S, with 382 participants trained.
- General competency requirements for testing and calibration laboratories, 20 participants.

In 2005, there were 1,638 course completions by INFOTEP personnel.

In May, SGS Panama informed INFOTEP of the results of the document audit and gave the go-ahead for continued implementation of the system as their evaluation showed the requirements had been satisfied.

In June, July and August INFOTEP carried out two cycles of internal quality audits, and there were two management reviews that consisted of an analysis of aspects of the system including the discrepancies that had been detected, corrective and preventive measures, factors that affected the product, customer satisfaction and the results of processes.

Besides this, the institution was completely re-structured, which meant that rapid changes had to be made in all aspects of documentation.

The Japanese 5S system was applied every month.

After the courses, there was follow up on the discrepancies that had been detected, and the problems that had come to light at various stages of the whole process were cleared up.

Another important aspect of the process was that, in addition to everything else that was being done in INFOTEP, the institution was also making preparations to host a meeting of the ILO/Cinterfor Technical Committee in October. This was another challenge, but it was handled well and the meeting, which coincided with INFOTEP's 25th anniversary, was a success.

The external auditors from SGS Panama conducted the audit from 5 to 9 September, evaluating every aspect of the system that had been put in place.

They subsequently recommended that the National Institute of Technical Vocational Training (INFOTEP) should be certified under the ISO 9001:2000 standard with UKAS in England.

On 8 November INFOTEP officially received certification accrediting their quality management system with the number MX05/0691.

People who have worked on implementing quality systems will know that the time involved is very limited, but it is important to underline the fact that top management at INFOTEP worked very hard on defining processes, making decisions, allocating resources and so on, and without their commitment the project would not have been successful. Managers' involvement, an extraordinary staff effort and teamwork were all decisive factors in successfully completing the process but that was only the first step, and the same effort and dedication has to be sustained.

It is important to stress that, throughout the whole process, INFOTEP was supported by other organizations of the same type that were already certified such as the SENATI in Peru and especially the INTECAP in Guatemala, not to mention ILO/Cinterfor, which gave valuable guidance and support in human resources training.

In December 2005, after overcoming a whole series of obstacles along the way, INFOTEP could look back on a tense and busy year with satisfaction for a job well done.

The goal for 2006 was to keep the system running smoothly and make continual improvements to all the processes in the institution so that the follow-up audit in May of that year would show that the system worked and that INFOTEP had developed the capability to keep it going.[21]

2.6 The quality model in vocational training guided by ministries of labour: the case of Argentina

In recent years the Argentine Ministry of Labour, Employment and Social Security (MTESS) has been working in various ways to strengthen labour, and this has resulted in improved quality, pertinence and cover in the training offer. The MTESS has a specialist branch for training, the National Vocational Guidance and Training Administration, and in this a quality vocational employment and training programme was created to foster the application of effective systems in the implementation of vocational employment and training policies.

The quality programme is geared to developing and implementing technical support mechanisms to be applied in the framework of a "More and better work" integrated employment plan through a sectoral training programme and also the training component of the Unemployed Heads of Households Programme.

Some important features of the MTESS programme for quality employment and training are as follows:

- The main aim of the MTESS employment and training programmes for employed and unemployed workers is to make them more employable, that is to say to enhance their chances of obtaining and retaining a job.
- The indicators that can be used to evaluate how satisfied the beneficiaries of employment and training programmes are include the quantity and quality of information that is available to potential beneficiaries to help them accede to training programmes and/or labour competency certification, and impact evaluation mechanisms that make it possible to follow-up the beneficiaries as regards conditions of employment.
- It is important to have efficient training institutions whose procedures for recognizing vocational capabilities are transparent.

[21] Based on a report by Susana Sierra, an INFOTEP management representative for the quality management system.

Quality involves management methodologies and criteria to do with the following:

- Labour competencies.
- Training and employment institutions connected to the certification of labour competencies.

The MTESS quality programme is geared to operating in four areas:

Social dialogue: To promote spaces for different actors –unions, employers, NGOs, universities, etc.– to deal with subjects in the area of qualifications and processes to improve vocational training.

Safety: To foster compliance with occupational health and safety standards.

Equity: To promote training and skills-recognition processes that foster equality in vocational development and quality employment.

Transparency: To work towards ensuring the effectiveness of public spending on vocational training by promoting processes to redefine qualifications and bring about continual improvement in the institutions that participate in the plans and programmes.

The following mission and objectives are defined in the programme, in line with its work in the area of quality:

Mission

To cooperate in strengthening economic competitiveness and enhancing social equity through introducing measures in institutions to ensure quality employment and to develop competencies among the working population.

Objectives

- To promote social dialogue by setting up a quality employment and vocational training framework.
- To identify quality dimensions and descriptors that are validated by actors in production, work and training.
- To improve the quality of management in vocational training institutions through utilizing national and/or international standards (the ISO standards, IRAM, the National Quality Award, etc.).

- To contribute to the development and diffusion of instruments for facilitating the transparency of qualifications through competency standardization and certification.
- To promote continual improvement in vocational training programmes linked to the Employment Secretariat.

The quality programme is mainly geared to the economically active population, whether employed or unemployed, and it operates through:

a. The production and labour sectors, aiming at identifying, standardizing, evaluating and certifying competencies.

b. Vocational training institutions, as agents that are co-providers of training.

Functions of the quality programme

- To support the development of institutions in the activity sectors.
- To create elements that help to strengthen institutions and promote the recognition of workers' competencies.
- To supply information about the current situation and state of development of training and certification institutions and about the qualifications required.
- To develop a quality reference for training and employment institutions.
- To support and monitor training institutions in their strengthening processes.

The programme's strategies for action

- To involve actors from the worlds of production, labour and training in decisions about processes to continually improve the quality of institutions and skills.
- To make strategic alliances with key actors to construct networks to consolidate and reinforce existing quality standards.
- To stimulate and strengthen sectoral and territorial decentralization and local development.
- To promote continual improvement processes to consolidate a reference framework.

- To take advantage of practices and tools that have been validated in the past by other MTESS programmes.

Institutional structure of the quality programme

This structure is made up of three areas in charge of the different work aspects of the programme:

The Competency Certification Technical Unit (UTeCC)

The specific task of this unit is to strengthen people's employment situation and their employability, in a framework of social dialogue. The aim is to obtain sector-wide recognition of qualifications through evaluation and certification processes geared to labour competency standards.

The Evaluation, Monitoring and Technical Assistance Unit (UEMAT)

This unit works on formulating the criteria and conditions that the vocational training institutions that co-execute MTESS training policies can be required to comply with.

The Register of Training and Employment Institutions (REGICE)

This unit registers, organizes, and provides up-to-date quantitative and qualitative information about the training institutions that are involved in the vocational training programmes and projects that come under the Employment Secretariat. This covers labour competency standards, sectoral certification bodies, certified evaluators and certified workers.

Source: www.trabajo.gov.ar