# *quality management in vocational training*

## *The use of standards and their different applications*

Fernando Vargas Zúñiga

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First edition: Montevideo, 2004

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VARGAS ZUÑIGA, F.
Quality management in vocational training: the use of standards and their different applications. Montevideo : CINTERFOR, 2004.
65 p. (Papeles de la Oficina Técnica, 12)

Bibliografía: p.63-65
ISBN: 92-9088-168-2
Título original: La gestión de la calidad en la formación profesional: el uso de estándares y sus diferentes aplicaciones.

/GESTIÓN DE LA FORMACIÓN/ /CALIFICACIÓN PROFESIONAL/ /CERTIFICACIÓN OCUPACIONAL/ /FORMACIÓN PROFESIONAL/ /NORMA DE CALIDAD/ /NORMAS DE PRODUCCIÓN/ /ADMINISTRACIÓN GENERAL DE LA CALIDAD/ /PUB CINTERFOR/

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The Inter-American Research and Documentation Centre on Vocational Training (Cinterfor/ILO) is an ILO technical service, set up in 1964 with the aim of encouraging and coordinating the action of the Latin American and Caribbean institutes, organisations and agencies involved in vocational training.

The Centre publications can be obtained through ILO local offices in many countries, or direct from Cinterfor/ILO, Casilla de correo 1761, e-mail: dirmvd@cinterfor.org.uy. Fax 902 1305, Montevideo, Uruguay

Printed in Uruguay

Web site: www.cinterfor.org.uy

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# Acknowledgements

The author, in the name of Cinterfor/ILO wishes to express his gratitude to all those who contributed invaluable information and experiences for the development of this book; special thanks are due to:

- María Ledvia Berganza, Manager of INTECAP
- Giane Rita de Souza Ferreira. Process Management Manager. SENAC.Minas Gerais
- Guillermo Salas Donohue. National Director of SENATI
- Paulo Fernando Presser. Director. Claiton, Paulo Meurer and José Antonio of the SENAIDR. Rio Grande do Sul
- Valter Wicioni of the SENAI-DR São Paulo
- Alexandre Magno Leao dos Santos. Director SENAI-DR Minas Gerais
- Doris Galindo Álvarez. SENA Antioquia Regional Office
- Consuelo Gutiérrez de Quijano. Sub director of Vocational Training and Employment. SENA. Antioquia Regional Office
- Armando Gómez Cardona. Head of the National Construction Center. SENA Antioquia Regional Office
- Juan Carlos Blandón Estrada. National Center of Footwear and Leather Manufacturing. SENA Antioquia Regional Office
- Nicolás Agudelo. National Construction Center. SENA Antioquia Regional Office
- María Adiela López Cortés. Head of the National Center of Wood. SENA Antioquia Regional Office
- Agustín Ibarra. Consultant
- Pedro Cabarrús.Consultant.

Finally I wish to thank Natalia Miguez for her relentless search of useful documents

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# Preface

Quality is not a new issue in vocational training, but the use of international standards within institutions in order to create new institutional cultures is. In the framework of the implementation of total quality management strategies, more and more Latin American and Caribbean vocational training institutions are using international standards, quite successfully, to certify the quality of their training processes.

Cinterfor/ILO has always been interested in the dissemination of new tendencies and routes as well as in the dissemination of good practices, which provide better results to users. Along these lines, this document seeks to disseminate this new phenomenon. It intends to reveal what is going on and to call the attention on the characteristics that quality management trends are showing regarding training.



This document does not intend to be a technical reader for the application of standards. Instead, it seeks to reflect the experiences and motivations of those who both inside and outside the institutions have been in touch with these processes. Theoretical references regarding standardization as the philosophical basis of quality centred on continual improvement have been included in this document. Also, various training institution experiences regarding quality certification are reported and there is a final section where the substantial part of a number of standards regarding institutional work is presented.

Far from making a closure on the multiple interests, initiatives, debates and statements regarding the issue, this work presents various subjects, which probably open interesting controversies. In this sense, it is expected that this document will contribute to the initial steps towards conceptual advance regarding this significant trend towards total quality management. As usual, Cinterfor/ILO will be watchful of reactions and demands for more information in order to achieve continual improvement of this line of work, which is only another part of the reality of the rich institutional arena of training in the region.

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*"Measure it twice and cut it only once"*
Carpentry Workshop, HEART Trust/NTA Training Centre, Jamaica

# 1. The concept of quality management in vocational training

Quality management has always been one of the main concerns of Vocational Training Institutions (VTIs). As national institutions, their interest in offering an adequate answer to national needs implies good quality. The concept of management, as it will be explained lately, is a step forward in the route towards quality.

> Quality management is an organizational strategy and a method of management, which involves all employees and seeks to improve continuously the efficacy of an organization regarding customer satisfaction.
>
> CEDEFOP, 1998

Those interested in training, and even more, the customers of the institutions, expect that the provided training is related to the abilities and competences required. The growing training demands and the rapid and changing conditions have imposed to the training offer the need to show that they do a good job. Also, the funds assigned to training have become so important that frequently an analysis of their correct application and specially of their impact is required. This transforms quality management in the training process into a relevant issue.

**Key aspects of quality management in educational processes**:

- Customer centred
- Quality policy
- Responsibility, authority and communication
- Resources provision and management
- Competent human resources
- Infrastructure and working environment
- Product planning and realisation
- Design and development
- Buying process
- Control of the follow up and measuring devices
- Customer's satisfaction

It is important to point out that the concept of Quality Management developed in this docu-

ment refers to processes[1], in this case the processes of vocational training within Training Institutions. There is another conception of quality, which approaches the products of training. The first concept, quality management of the processes, is the one that the ISO[2] 9000:2000 refers to. This standard can be resumed in four big moments or phases: direction responsibility, resource management, product realisation and measurement, analysis and improvement.

Another concept of quality is centred on the characteristics of the products of the vocational training process. Therefore, it covers the performances in the labour market of the graduates. Different methodologies have been used to approach the measurement of the results. These methodologies have developed and evolved since the eighties with the so-called boom of quality. They include, for example, statistical analysis of indicators such as income evolution, labour mobility, etc. Recently, these methodologies have been focusing on the entry into the labour market of graduates, their labour performance according to employers and the relevance of the provided training. The evaluation of training impact is a good example of the use of information to measure quality under the product approach.

In the thirties, with the expansion of the series production, statistical techniques were used at the end of production lines; therefore, the necessity of inspecting all products was avoided. The costs associated to quality control were lower. Afterwards, intermediate control points along the process were created in order to anticipate the faults that were only registered in the analysis of the finished product.
The definition of key parameters on certain values of the characteristics of the product, which provide a range of acceptable statistical validity of the product, improved the statistical techniques. In this way, the statistical control of processes emerged, which was overcome by techniques developed in Japan which in time gave place to the concept of Quality Management and then to the concept of Total



In this document quality management regarding vocational training will be analysed from the stand point of the management of processes in the institution assuming that an organization which acts according to the implicit principles of the quality standard will ensure consistently the quality of its products and the satisfaction of its customers.

[1] Process is understood as "an activity or group of activities that uses resources to transform inputs into products or services."
[2] The acronym stands for International Organization for Standardization. It was founded in the United Kingdom after the II World War in order to promote international standards to facilitate the exchange of goods and services.

According to this perspective, many training institutions have defined a quality policy explicitly and as a consequence developed quality management strategy. This implies to have external and internal referents and to combine both in order to advance in the fulfilment of goals.

The implementation of a quality management system requires the application of various basic principles:

- A clear orientation towards the customer: to understand and satisfy the customers' needs
- Continual improvement of the institution activities: quality as a philosophy that never ends
- Defined and consistent processes: Processes are defined and its fulfilment is guaranteed
- Quality guarantee of the processes: The quality of a process comes from the preceding processes. In the same way, the quality of a training service reflects the control applied to its process.
- To prevent instead of to supervise and correct: The costs of preventive measures are lower than the costs of a close supervision and correction

The organizations, which have implemented the Quality Management, have adopted in general the following principles[3]:

- Commitment to the direction
- Team Work
- Quality is everybody's task
- Decisions are based in facts and knowledge of objective data
- Systematic solution of problems. Problems are understood as "everything that can be improved"



The quality standards application has improved since the version of the ISO 9000:1994 standard, which privileged the orientation towards ensuring quality and the 2000 version of the same standard. This last version has included new features that favour quality by promoting the institution's commitment to a process of continual improvement.

[3] ISO 9000 standards applications to teaching and training. European Training Foundation. 1998.

## 1.1 Standards and quality assurance

Quality assurance usually implies a comparison between a certain product or service and a standard, previously defined, which establishes the criteria to assess the quality of this good or service.

In this context, the ISO 9000:2000 standard is being increasingly used. This standard refers to the quality assurance from a general perspective, not specifically associated to a certain product or service. Users are the starting points. Currently, there is a high valuation of the ISO standards as "quality hallmarks", among other reasons this valuation has extended their usage to the VTIs. The 2000 version of the standard advanced, from the concept of quality assurance of the 1994 version, to the design of a quality management philosophy, which incorporates an emphasis in continual improvement.

The VTI, which have incorporated the quality management philosophy, are acting on their processes through the development of systematic and consistent definition, documentation and verification. They are acting over the training inputs in order to achieve their goals. Usually, quality standards are applied according to a wide conception of quality management, which uses the mentioned basic principles.



In fact, the ISO standards refer fundamentally to the consistency and systematization of de processes. They constitute a method to standardize the organization activities and to offer reliability to customers over the expected quality of products and services. The group of ISO 9000 standards is applied in quality management; in fact, the ISO standards are not related to the intrinsic features of a given good or service. In other words, even if a VTI is certified by ISO 9000[4], competency certification related to the performance of its graduates is required.

The series of ISO 9000 standards was adopted in 1987 by the European Standardization Committee and then globally assumed by ISO in 1994. The last version of the standards is from 2000. The certification principle under the ISO standard is based in the review and an evaluation of the conformity to the standard, which provides a uniform method of quality inspection.

[4]Even if the generic reference is the ISO 9000 standard, it is the ISO 9001 standard the one used to certify quality.

## 1.2 Quality management, knowledge and institutional learning

Various analyses have shown that when an organization starts a process of quality assurance, there are not only procedure issues but there is also a key underlying feature. It has to do with the way in which the quality principles are adopted and with the journey through the certifying process because these two instances generate valuable results in terms of organizational learning. These results have been recently analysed in the literature on knowledge management.

### *Institutional learning*

In many experiences of ISO standards application it has been documented the need of a training process for workers. This learning is linked to the structure arrangement, improvement and documentation of the processes. The persons involved in the processes should question themselves, explicit the procedures, document them and then apply them.

In this procedure, overlapping and voids are found in different activities and the search for solutions by the work in-group results in the application of new knowledge and of previous experiences. The analysis of the processes introduces new ways of learning[5]. Training institutions can, therefore, take advantage of the generated knowledge and reapply it in order to promote learning. In this sense, learning forms such as "learned lessons" or "good practices" shape what is known as "knowledge generated in the working processes"[6]. The documentation of processes, its analysis and continual improvement offers an extraordinary opportunity to learn to the VTI and to make explicit the knowledge that is usually applied.



The above is exemplified in the activities of development of processes of enrolment, registration, evaluation, didactic and material development. The analysis and improvement of these processes has allowed for the development of institutional capacities that today are reflected in the design of training workshops and centres, electronic training media, evaluation material, etc.

It is true that the standards are vulnerable to the permanent risk of over definition, and that these debate should not be avoided. To detail processes and to describe steps and procedures has a threshold of efficacy related to the

[5] Mertens, Leonard: 1996.
[6] Peluffo, Martha; Catalán, Edith:2002.

problem of over specification, which undermines and eventually nullifies the descriptive capacity of documentation. In terms of knowledge management, the process of documentation is a process of knowledge codification and in this activity "the abuse of codification can reduce the learning spaces and produce in the long term stagnation in the evolution of the organization". [7]

***Knowledge management***

Today knowledge is valued as a resource, probably the most valued one in the context of VTIs. VTIs are organizations devoted to the generation of knowledge related to training. Their more valuable asset is to translate the work demands into training programmes: codified knowledge, which has the capacity to foster the development of labour competences.

After the eighties, when all kind of remarks were done to the training institutional model, the alternative models showed its deficiencies regarding their ability to generate knowledge related to training. The capacity to gather knowledge, educational capacities, design and training methodologies, qualified teachers and processes of teaching/learning is a product of the know-how of the institutional organization of training.



VTIs have shown, since the second part of the nineties, that they have that capacity and they have applied their knowledge to develop new ones, to innovate in the programmes and to apply new methods. Undoubtedly, the codification developed in the processes of quality management allows for this accumulation and for the usage of it in training. This is one of the potential advantages of the use of a quality certification system in the VTIs.

The capacity to innovate that the VTIs show reveals that partners can put into practice the accumulated knowledge and experiences and therefore generate new pedagogical products. The organizational context is fundamental and the specific intention of the VTIs to improve their capabilities facilitates the establishment of projects and working areas that promote knowledge generation. Tacit knowledge will be turned into explicit knowledge and then the certification process can be expanded and used in the whole process.

The VTIs oriented to knowledge "learn" through the storage, mobilisation and management of their experiences and information. The interaction with the entrepreneurial sector, the data on the economic sector evolution and the

[7] Villavicencio, Daniel; Salinas, Mario: 2002.

occupational contents are all elements of knowledge accumulated and generated in the working process.

The documentation of the processes that support the accumulation and generation of knowledge has a strong relation to the codification done during the certification processes and to quality. That part of the knowledge is included and codified in the manuals and established procedures where besides defining a quality policy it is necessary to do a clear enunciation of the vocational training process, of the persons in charge of quality management and also of the responsibilities according to each process.

### *The global and regional recognition*

The labour market is becoming more and more complex and less traditionally organized. The old traditional separation between time of work and time of study, work place and home, place of work and place of study is less defined nowadays.

Also, the number of training offers has increased. Now, not only traditional VTIs prevail. Sometimes the demand volume and sometimes the complementary existence of funds for the contracts of training have incremented the number of training institutions.



These offers are varied and widely different which brings forth a need for a service quality reference, from the standpoint of both customers and public sector. In this case the concern about quality comes from those who want to be trained, those entrepreneurs who want to invest in training of their workers and those who provide funds.

This is the reason why quality certification mechanisms are being increasingly applied in a highly competitive market. Many European countries where the funds for training are used through auditing processes between private and public specialised agencies seek to have a quality criterion, which allows for reliability when resource allocation has to be decided. In these cases the quality standard certification has

In the European Union within the continuing training mode (directed to involved workers) the use of quality standards is very extended. This type of training is usually developed with funds which can be used by different institutions.
Since 1989, the EN 45013 standard "General requirements for bodies operating certification of persons" is applied. This standard was the base of the ISO 17024 adopted by ISO for international application.

been positively accepted. In Chile, a version of the ISO 9001 quality standard has been elaborated in order to adapt the original to the technical executioner training agencies and these agencies have been motivated to start the certification process.

# 2. Quality Management in vocational training institutions

The increasing entry of new actors in the training scene, the availability of a blend of new financial funds and the necessary specificity sought from training programmes are, among others, the factors that have influenced in the genesis of the modernisation processes of the institutions. Currently, the processes of transformation and adaptation to change are priority issues in the VTIs' agenda.

The customers, training users in a diverse market, increasingly require knowing the best and more quality guaranteed offers. Both entrepreneurs and workers seek for efficiency signals. The financial resource providers are also interested in the best usage of the invested funds in vocational training. Quality-managed institutions represent a social guarantee to the efficiency of the public expenditure in vocational training. The same reasoning can be applied to the private funds: they must go to agencies that develop relevant, efficient and effective training processes.

**Quality and technological development**

Some vocational training institutions are involved in the national quality policies and work in association with the national standardization and certification agencies. This joint work is evident by the certification of their Technological Development Centres (ISO 17025) to give services of metrology or rehearsal which are required for the fulfilment of the quality standards of different products in the national and international markets. This is the case of the National Technological Centres of SENAI and the efforts of the Technological Development Centres of SENA. They also developed training and assistance activities for enterprises during the implementation of quality management systems. This service is more and more available as part of the institutions' services. This is the case of the Small and Medium Enterprises Services Centres of SENATI which provide training with an emphasis in the improvement of quality.

The growing interest in improving the efficiency and relevance of their activities is reflected in the adoption of quality management mechanisms and certification of quality.

This tendency is expressed by the adoption of institutional actions towards the development of a quality culture. Such actions, usually embedded in the philosophy of continual improvement or in the processes of institutional modernisation, imply training activities for the personnel, search for critical factors, and clarification of mission and objectives, which in turn lead to institutional quality improvement.

**Quality Management and Environment in Vocational Training**

**SENAI** in the Ceará State, in the North East of Brazil developed a project of environmental management system in the textile industry, which allows for the ISO 14000 certification of three units of one of the most important entrepreneurial groups of the sector. It worked together with the Regional Department of São Paulo and Santa Catarina. Ceará concentrates 10% of the textile GDP of Brazil with 350 enterprises and more than 60 thousand total jobs.

This year **SENATI** achieved the 14000:1996 ISO certification. The training institution of the Peruvian industrial sector exemplifies the environmental impact in electrical energy consumption, waste disposal, and noise pollution in workshops. Special attention deserves the environmental content of the training programme and its relation with working practices.

On the other hand, some key aspects regarding organizational competitiveness are reflected clearly in the workers' labour performance. Nevertheless, the courses of the training programmes do not necessarily represent such aspects. Many times these aspects have to do with the learning environment. In issues related to Occupational Health and Safety a series of standards, which seek to preserve the adequate working conditions, have been developed. If the learning environments reflect conformity to the standards, certain capabilities of the participants, which have to do with their competent performance, can be developed. In this way, a vocational training institution which develops a good practice of conformity to international standards on occupational health and safety in their workshops will be contributing to the development of participants' core skills. Something similar is taking place, for example, in the area of environmental protection and 14000 standards. In fact, many training activities are developed according to those standards which foster the generation of core skills and the employability of participants.

Simultaneously, institutions have been looking for a quality external hallmark and have adopted the guarantee of quality certification of the ISO-9000:2000. All the services available at the institution can obtain quality recognition by the certification of conformity to certain standards. This is the case of the laboratories, which provide technological services certified by the ISO 17025.

But also the adoption of the quality philosophy and the process of certification imply the conformation of an organization supported by knowledge. Much of the knowledge accumulation process existent in the training institutions can be defined as knowledge accumulated in the working processes. In effect, the major advantage of institutional vocational training is the development of training institutions as learning organizations.

### 2.1 Some experiences on quality certification in vocational training institutions

In Europe, since the beginning of the nineties, and later on in Latin America, the VTIs started activities towards quality management and guarantee. The first institutions implemented the total quality management mechanisms and almost all of them seek the ISO 9000 standards certification. In this section some institutional experiences[8] will be described and a review of the information obtained by a survey of the institutions which obtained the quality certification in the last years will be presented.



The **National Industrial Training Service** (**SENAI**) of Brazil has one of the oldest experiences of the region with antecedents in the regional Department of Santa Catarina of the application of the 5 "S"[9] programme and the subsequent recommendation for the ISO 9000:1994 standard obtained in 1997. They have also acquired certification in the Regional Department of Paraná (in 1997 the Technological Institute of Paraná was the first vocational training institution of Brazil that got the ISO certification), Espirito Santo and Pernambuco. Also, the National Department of SENAI was certified with the

[8] It will not be an exhaustive review. In the cases where information was available, the experiences are included.

[9] Japanese quality management system oriented towards the promotion of order and cleaning. The 5 "S" refer to: Seiri - to tidy, Serton - to order, Seisou - to clean, Seiketsu - to mantain, Shitsuke - to discipline.

ISO 9001 standard applied to planning, development and co-ordination of strategic projects and operative improvement projects.

As antecedents of the work towards quality management in SENAI the following can be mentioned:

- Participation in the General Sub Programme III of the Brazilian Programme of Quality and Productivity (PBQP) in the role of coordinator institution in 1992: "Education and Training of Resources."
- Participation in the Commission of the General Sub Programme IV of the PBQP – 1992 – "Adaptation of the technological services for quality and productivity."

Since 1993, SENAI started to widely use an internal quality management and recognition system in its Training Centres, which certified them as "Model Centres of Vocational Training" or "National Centres of Technology". The system was inspired by the criteria of the Quality National Programme: Process Management, Leadership, Strategic Planning, Customer and Market Centred Approach, and Information Results and Management. It included three progressive levels of conformity to the criteria, which defined three categories: Bronze, Silver and Gold.

**SENAI** is the vocational training institution for the industrial sector in Brazil. It was established in 1942 and it is in one of the oldest training institutions in Latin America. SENAI has 417 centres and 317 mobile units.
**www.senai.br**



The national project of the National Technological Centres (CENATEC) was a milestone in the work of SENAI towards total quality. Its central goal was to introduce a quality management model in the technical schools. This was a national project, which included the following specific goals:

**SENAI's mission**:

"To contribute to the strengthening of industry and the total and sustainable development of the country through the promotion of education for work and citizenship, technical and technological assistance, production and dissemination of information and adaptation, generation and dissemination of technologies."

- To establish a strategic alliance between SENAI and the different social sectors linked to the productive sector in order to improve the technological training of the country.
- To create a network of competency poles in the different technological areas.

- To consolidate quality management in the Technical Schools.
- To absorb, adequate and disseminate innovation and technology with the objective of continual improvement of the process of teaching/learning.

This programme had a process, which seeks to fulfil the strict requirements of the national quality premium through the following stages:

- Conception through Planning (Strategic Management centred in Planning)
- Implantation (Total Quality Management)
- Evaluation (National Quality Award)

Lately, in 1996, because of the success of the CENATEC process, the National Department of SENAI developed another project to achieve total quality management in the learning schools. Its objective was to install in the CEMEP (Vocational Training Model Centres) the quality principles oriented towards training for work. Currently, these projects continue to be in execution and are known as SENAITEC and CEMEP. SENAI has 45 SENAITEC and 56 CEMEP. The SENAITECs are part of a Network of Centres which cover areas such as Textile Industry, Food Industries, Leather and Shoe Industries, Sanitation and Environment, Cellulose and Paper Production, Wood and Furniture Industry, Foundry, Food, Mechanics, Refrigeration and Construction Industry, among others.

**Quality Policy of SENAI, Regional Department of Pernambuco**:
"To seek for excellence in quality, based on the following principles:

- Continual improvement of services
- Development of partners, promoting continual growth
- To satisfy and surpass the customers' needs."



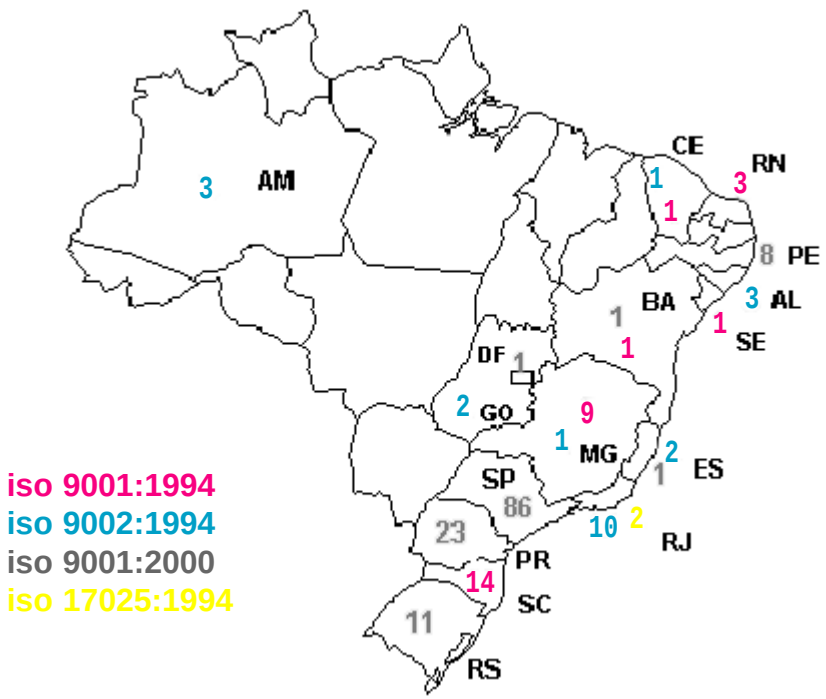
The **SENAITECs** are poles of generation, adaptation and transference of technology. They develop vocational training activities and provide services to the industrial sector such as assistance in the productive process, laboratory services and technological development and information. All this is developed according to the strict criteria of the National Quality Premium and the ISO standards.

Since the mid nineties, the clear orientation towards quality management of the institution made it possible for several Regional Departments to start the process of quality certification of the ISO 9000 standard. This was caused not only by the idea of promoting schools managed with a quality policy but also by the needs of competitiveness originated in the

entrepreneurial sector. Nowadays, the quality management is part of the conception of institutional management and has the feedback of the trends generated in the Brazilian industry.

In the following map the different Regional Departments with ISO 9000 certification are shown, as well as the laboratories which have achieved the ISO 17025 certification:

**SENAI – ISO CERTIFICATION DISTRIBUTION BY REGIONAL DEPARTMENTS**






Among the Regional Direction which have achieved the quality certification are: Alagoas (AL), Amazonas (AM), Bahia (BA), Ceará (CE), Distrito Federal (DF), Espirito Santo (ES), Minas Gerais (MG), Paraná (PR), Pernambuco (PR), Rio Grande do Sul (RS), Rio Grande do Norte (RN), Santa Catarina (SC), São Paulo (SP) and Sergipe (SE). Totally, SENAI has more than 180 quality certifications and some more for the national departments' headquarters. Also, there are 35 certifications still in process.

The participation of the different Regional Directions in the definition and establishment of a quality policy co-ordinated with economic actors in each state is remarkable.

In this way, SENAI uses different management tools oriented towards the creation of a learning organization that is capable of day to day improvement in its training process and, therefore, fosters the competitiveness and productivity of the Brazilian economy.

The **National Commercial Training Service** (**SENAC**)[10] in the Regional Administration of Minas Gerais developed a quality certification process under the ISO 9000 standard. The Certification was achieved in July 2000 and was validated through the first auditing of maintenance in February 2001. The coverage of the certification is wide and it was provided on the educational projects of more than 300 vocational training courses: from planning and provision of resources for the creation of a course and attention during enrolment, to analysis, validation and standardization of pedagogical and management courses which guarantee the quality of courses and the evaluation of results, orientation and follow up of the student since he/she finishes the course and faces the labour market.

The **SENAC** was created in January 1946. It is a Vocational Training Institution open to the whole society. Its mission is to develop persons and organization for the working world through educational activities and the dissemination of knowledge in the trade of goods and services.

**www.senac.br**



The starting point for the implementation of a Quality Management system in SENAC was the action of sensitising the managing group, the creation of Quality Coordination and the assignation of Quality Managers for each unit. Afterwards, training activities and specific events for the staff of SENAC were developed. A total of 750 employees participated in those activities. As a result of all these work, SENAC achieved:

- Standardization of the processes, which facilitate the preservation of the know-how of the institution.
- Standardization of the vocational training courses which are adequate to the changes of the world of work.

[10] Based on an article from SENAC's Digala Publication (Giane Rita de Souza Ferreira, Manager of process management, SENAC, Minas Gerais.)

- Better commitment and participation of everybody in the processes and results.
- Analysis of the pedagogical process to guarantee the viability of the vocational training processes
- Establishment of goals, results indicators and controls to monitor effects and results of training activities
- More effective relation to the customer through a better attention that starts right at enrolment, quality courses monitored and validated by the pedagogical supervisor and mainly the relation teacher/student which has the basic premise of respect, transparency and aims at better results.

> "A decisive factor was the participation of all the workers who saw in this process the opportunity of optimisation of actions, standardization and reliability of procedures and results, reducing repetitions and subsequent stress at work, as well as the commitment of the high direction who accompanied, supported and provided the necessary resources for the implementation, maintenance, continual improvement of the Quality Management System."
>
> SENAC Minas Gerais



The **National Rural Training Service** (**SENAR**) in its administration of Minas Gerais, which was established in 1993, has as one of its main foundations the quality of the services. It established the SENAR Total Quality Programme where various methodologies were applied such as: TeamWork, Strategic Analysis, 5 "S", "quality coffees", quality panels and the quality newspaper, among others.

The processes were registered and made available to all, so that there was transparency in the working of the institution. In 1999, SENAR- MG achieved the ISO 9002:1994 certification. Currently, the institution is preparing the technical auditing for the ISO 9001:2000 certification.

The **National Training and Employment Service** (**SENCE**) from Chile was the first public service in that country to obtain a quality certification of the ISO 9000 family. In January 2000 received the certification that states that the process of Constitution of Training Technical Agencies in the Metropolitan Region "fulfils the requirements ISO 9002:1994 quality standards."

But also in Chile a quality standard has been developed for the executionary technical training agencies (OTEC). It is the Chilean Standard 2728:2002. The OTEC can execute training under contracts financed with public funds, which

The **National Training and Employment Service** (**SENCE**) is a technical decentralised state agency, which is related to the state through the Ministry of Labour.
Its mission is to contribute to increase the national productivity promoting vocational training among enterprises and among low-income people.
This work is supported through an incentive that the state offers to enterprises to train personnel and by a subsidy to a training programme financed through public resources.

are assigned through competing procedures and the access depends on solid and generalised quality criteria. The SENCE is promoting the use of this standard for the OTECs as a mean to generate a quality management system and a continual improvement in the provided training.

Currently, in Internet there is a guide of self-evaluation for the OTECs. More than 400 agencies have registered their names stating their interest in the process and more than 130 have started the process of self-evaluation. The process has had the support of SENCE, which has organized dissemination seminaries along the country and meetings between the OTECs and the certification bodies. Support instruments for the implementation of the processes are being designed.

The stages to develop and to implement a Quality Management System in the OTECs according to the Chilean Technical Standard 2728:2002 are:



- To assess needs and expectations of customers and other interested parties.
- To establish the quality objectives and policy of the agency
- To define the process and necessary responsibilities to fulfil the quality objectives
- To determine and provide the necessary resources to achieve the quality objectives
- To apply this measures to establish efficacy and efficiency of the process
- To determine the means to prevent disagreements and to eliminate its causes
- To establish and apply a process to continuously improve the system of quality management

The **National Training Service** (**SENA**) from Colombia achieved in April 2003 the ISO 9001:2000 certification of three of its training centres in the Antioquia Region. The certificates were National Construction Centre, National Wood Centre and National Leather and Shoe Centre. Previously, the Planning Sub Direction of that regional office had achieved the ISO certification. The institution has started, in the framework of its strategic plan, the process that allows for the certification of its 114 training centres. Its goal is to achieve it before the year 2006. The SENA also provides technical assistance to the enterprises that apply to the ISO certification.

The **National Training Institute** (**INA**) from Costa Rica is one of the first institutions that began the process of quality assurance. It achieved the ISO 9000:1994 in its Accreditation Unit in June 1998. Follow up auditing was developed in December 1998 and June 1999. This unit is in charge of verifying the suitability of the training offer of other institutions and compares them to the offer of the Institute. An institutional policy of the INA stated: "To design and execute programmes and projects, which allow for quality assurance of internal and external management of the services provided to employees and users."

As an antecedent of the certification of its Accreditation Unit, the INA had obtained the best qualification in an evaluation among 29 public institutions in Costa Rica. The evaluation was conducted by the National Evaluation System (SINE).



The **Technical Institute for Training and Productivity** (**INTECAP**) from Guatemala successfully developed the process towards the obtaining of the quality certification under the ISO 9000:2000 standard. The process ended with the recommendation for certification in November 2002. The scope of the quality management system of INTECAP included in the certification is "the study of labour markets, the design and development of training services oriented by labour competence and of training services with traditional certification developed in the INTECAP centres and in enterprises, as well as the provision of technical assistance services."

**INTECAP** is the vocational training institution, which promotes with state and private contribution the development of human resources and national productivity. It started its activities on May 19 1972 and its main goal is to train workers and new manpower in different economic activities through vocational training events. INTECAP trains three typical occupational levels: Executive, Medium and Operational, in the three economic sectors: Rural, Industrial and Commerce and Services.

In the current context of technological innovation, growing competitiveness and productive economic globalization, and the flexibilization of the labour market, INTECAP had to modernise in order to adequately attend the productive sector in terms of human resources development.

**INTECAP vision**:
"We are the leader institution in vocational training of workers and of human resources that will enter into the labour market.
We see the institution's future related to the design and development of training plans and the promotion of productivity in order to contribute significantly to the country's development.
These actions are developed expediently, with quality and excellence, going beyond our customers' expectations."

A remarkable feature of the INTECAP experience is the fact that the quality certification is part of the wide and successful process of institutional modernisation initiated at the end of 1998. The plan of modernisation included:

- To define a document for the modernisation of INTECAP
- To establish the basis for an organic reestructuration: organigrams at the level of Unit, Division and Department
- To define a schedule to start the process

The modernisation project included the following orientation elements:



- Changes in the process, both in value and in support
- Redefinition of the concepts of mission, vision and values
- Redesign of the technical and administrative process
- Acknowledgement of the importance of the orientation towards total quality
- Design and implementation of a horizontal organizational structure

Furthermore, the modernisation management was organized around seven sub processes:

1. Appointment of the Heads of Division, Unit and Department, as well as employees that according to the Constitution must be appointed by the Directive Board
2. Preparation for the establishment of a total quality culture
3. Redesign of the main institutional processes.
4. Definition of an organizational structure and a pilot plan of implementation.
5. Administration of human resources.
6. Regionalization
7. Consolidation of an institutional image.

The **Council for Standardization and Certification of Labour Competence** (**CONOCER**) from Mexico was certified in February 2000, with the ISO 9001:1994 in acknowledgement of the adoption of efficient systems which show their capability of assuring quality in the process of design, development, production and distribution of their products, as well as in the offer of associated services.

CONOCER is conceived today as the coordinator of a schema through which people can access continuing training, which is based on standards that represent the consensus of the productive, labour and educational sector. It is a quality entity in itself, oriented towards the improvement of quality of enterprises, workers and training institutions (www.conocer.org.mx).

In Peru, the **National Service of Occupational Training in Industry** (**SENATI**) received the ISO 9001:1994 quality certification[11] . After a strong national effort, the institution obtained the Certification for its Vocational Training Programmes: Dual Learning, Workers in service qualification, Industrial Technicians, Industrial Managers, Industrial Qualified Workers, Engineering Technicians, Continuing Training, Multimedia Training, Informatics; and, the Job List.



The Technical Services of Tests and Non Destructive Manufacturing, Assistance and Consultancy for Small and Medium-sized Enterprises were also certified in the forty-one regional offices. In March 2003 SENATI obtained the ISO 9001:2000 quality certification and the ISO 14001:1996 environmental management system standard. It was the first institution of the region that obtained this certification on environmental management policy.

**SENATI** was created in 1961, at the initiative of the National Society of Industries, when it was evident that traditional vocational training and technical education did not offer the qualifications required by modern productive activity. After an intense transformation process initiated in 1993, SENATI decided to implant a clear quality policy and it applied the ISO certification. The process of certification started in 1998 and its first achievement was the quality certification of conformity to the ISO 9001:1994 in the year 2000. This certification was followed by the joint certification ISO 9000:2000 and ISO 14000 in March 2003.

The philosophy of quality management of SENATI can be resumed in the following big steps:

[11] Bureau Veritas Quality (BVQI)

- Institutional Reestructuration between 1993 and 1998.
- Certification Process ISO 9001:1994 between July 1998 and December 1999.
- ISO 9001:1994 certification in the year 2000.
- ISO 9000:2000 and ISO 14001:1996 certification in 2003.

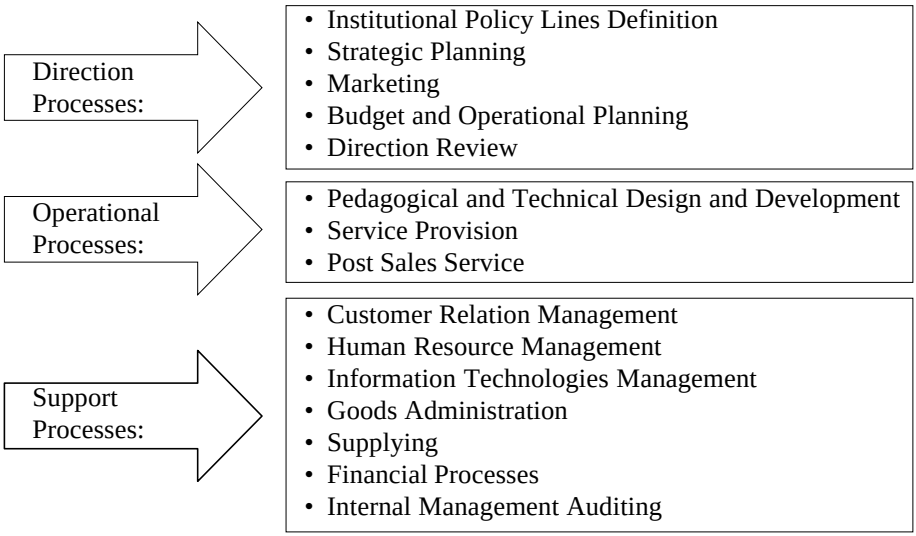
The steps followed by SENATI to obtain the certification are:

- National Council agreement to implement the quality system.
- Initial training to Directors and Chiefs on the ISO 9000 standard.
- General training to all personnel using a modular courses design and a clear evaluation system.
- Quality policy approving by the National Council.
- Definition of SENATI's products and customers by the National Direction.
- Creation of working groups to write and review the documents of the system.
- Internal auditors training.
- Approval of the Quality Manual, Organizational Manual and General Functions and Directives by the National Council.
- Approval of the Control Directive of the System, Quality Plans and Specific Directives by the National Director.
- Internal Auditors in regional offices.
- Pre certification Auditing.
- Certification auditing.



SENATI defined the following institutional processes for the stages of documentation and certification:

**INSTITUTIONAL PROCESSES IN THE QUALITY CERTIFICATION OF SENATI:**




One of the most demanding features of the quality assurance process is the definition and specification of the processes, particularly if the institution provides a training service. Therefore, an interesting institutional discussion took place in order to make an adequate definition of customers and products.

**REGIONAL OFFICES OF SENATI**
**CERTIFIED BY THE ISO 9000 STANDARD**

**SENATI's quality policy**: To offer information, vocational training and technical services of a quality level above the users' requirements.

**Management Policy**: SENATI assumes the commitment to promote permanent customers' satisfaction regarding vocational training and technical services, assistance and consultancy. Therefore:

- SENATI manages processes systematically, providing necessary resources to improve them continuously
- SENATI promotes professional development and welfare of the personnel to achieve efficient and effective institutional performance
- SENATI complies with the environmental legislation and regulations

**Certification of the FORCEM quality system in Spain**

Since the late nineties, FORCEM, the institution in charge of the Subsystem of Continuing Training in Spain, promoted a process of definition of its quality system. With that objective, training activities of co-ordinators in areas related to the ISO 9002:1994 standard were developed. After the elaboration of the working timetable and the definition of the necessary documents, the process, which included 155 procedures, started. The Procedures and Quality Department - Organization and System Direction - conducted the coordination and criteria unification as well as the project control.

In September 1998, given the scope and responsibility of FORCEM in the national context, FORCEM decided to present to AENOR the petition of certification.

It was considered an ambitious project in which almost all the personnel participated. At the end, this participation was one of the key factors of success of the initiative, which achieved the quality certification according to international standard UNE-EN-ISO-9002 in July 1999.

## 2.2 Brief Survey on quality management: motivations, benefits, learned lessons



A short survey was applied to the institutions that obtained the quality certification and to some experts in the subjects in order to identify the main features, the relevant variables and the lessons learned throughout the process of quality certification.

The perspectives that emerged from the survey have been classified in seven categories: motivations, suggestions for the initial stages, changes in the organizational environment and culture, direction role, captured benefits, recommendations and challenges.

### *2.2.1 Main motivations*

Among the factors which promote the beginning of the process of quality assurance, it is often mentioned the competitiveness factor. Usually, as SENAI of Rio Grande do Sul pointed out, the enterprises turn to the ISO certification in order to improve their competitiveness. In the case of the VTIs, it seems to exist a mixture of factors. Among these factors, the need to improve processes

and the consequent benefits in the functioning of the institution must be highlighted. Image reasons are also mentioned. The following list is a synthesis of the mentioned motivations:

- To make available a course design quality pattern.
- To improve the institutional image, to achieve national and international recognition.
- To accompany the evolution of quality management according to the enterprise dynamics.
- To have a good quality institution with a philosophy of continual improvement.
- To reveal to society the capability of the institution to carry out a quality management.
- To make available tools for management.
- To face the pressure of the growing number of certified enterprises among their provision chain.
- To offer a better service to customers and workers who participate in the programme.
- To seek efficiency which derives from the application of the eight principles of quality management.
- To have clear and documented processes which saves time and money.
- To generate more credibility and reliability regarding institutional services.
- To guarantee the attention to customers' needs.
- To improve possibilities of personnel development.
- To rescue the technical unity through the standardization of the processes.
- To put in practice the institutional legislation.



It is clear that the institutions that worked in the processes of certification maintained an open relation with their customers. They are also conscious of the need of a competitive and quality oriented image. The institutions have usually developed a wide base of standards, regulations and procedures. The answer of the Regional office of Antioquia of SENA underlines the applicability achieved when processes are standardized and the unit is reconfigured in its technical procedures.

### *2.2.2 Suggestions for the initial stages*

The varied experiences allow for the collection of suggestions which range form the strict observation of the formal steps defined in order to achieve certification to issues such as the adequate commitment of involved parties and the perception of the process as a medium time effort, as the person in charge of SENATI pointed out. Here are some of the suggestions:

- To look for the participation of all the personnel.
- To have a direction with a clear perception of the process, the available resources and the required time.
- To know that it is a long-term process.
- To communicate how the process is being conducted at all levels of the institution.
- To involve the personnel in the process.
- To facilitate the standardization of institutional processes.
- To take into account the incompatibility between the educational and entrepreneurial approach of the standard.
- To establish quality objectives and policy.



Agustín Ibarra, one of the surveyed consultants, resumed the suggestions in three groups: systematic vision and process management approach, personnel active participation and responsibility, and finally the existence of good information systems and registration that allows for a better knowledge of the customers.

### *2.2.3 Changes regarding the organizational environment and culture*

The true dimension of the change will be measured by the organizational environment and culture. Quality management, according to an interviewee produces a paradigmatic break and change in the traditional way of thinking and acting. It is significant that the interviewees sees the process as a sustainable change towards the creation of a quality culture and not as an isolated effort towards the obtaining of certification. SENAR from Minas Gerais mentioned the need to break barriers and to create working groups of different departments and functional areas of the institution. Some considerations on the changes regarding environment and culture quoted in the survey are:

- To develop a participation-oriented, creative and innovative leadership to affect positively organizational environment and culture.
- To review traditional practices and patterns in order to promote better working practices.
- To develop a culture of consultancy of processes documentation.
- To manage human resources in connection to the organizational objectives.
- To develop working groups in different areas.
- To develop a better attitude towards customers demands.
- To develop a whole vision of the institution which overcomes the isolated vision of each one in their own working area.

The experience of SENAI of San Pablo is very illustrative of this point. The interviewee answer insists on the development of a vision of the macro processes. The probability of success in the implantation increases if the relation and interaction between different departments increases. SENAI also mentions the joint work of teachers and personnel. Finally, the need to guarantee that all personnel has access to information on the status and evolution of the project, which fosters a culture of open and transparent information.



### *2.2.4 Role of management in the process*

"Actions are more eloquent than words" wrote the responsible of INTECAP. This seems to be the message, which resumes the role of direction in the process. Leadership is the word more used among the interviewees. According to Agustín Ibarra, the role of direction is crucial, specially if we consider that the direction is one of the responsible parties regarding the adoption or not of a quality model.

The following list resumes the main answers:

- To establish the quality policy and objectives of the institution.
- To exercise a leadership which promotes personnel participation.
- To create and maintain a good internal environment.
- To explain clearly the motivations of the institution.
- To persuade personnel.
- To move the resources to maintain the quality management system.
- To make clear the importance of attending customers needs.

### *2.2.5 Captured Benefits*

According to an interviewee, the ISO 9000:2000 standard concedes more importance to the resource management and the measurement of results, which leads to better managerial practices and improvement of efficiency. The answer of SENATI is concluding: certification has improved the quality of training. The benefits more frequently mentioned are:

- Improvement of the institutional image and credibility.
- Planning, organization and control of vocational training activities.
- Increase in the number of customers (students and enterprises).
- Customers satisfaction. Measurement of the customers satisfaction.
- Better perception of responsibilities.
- Quality of the training services.
- Cost reduction.
- Trust in the institution's products.
- Less internal conflicts and more interaction between different areas.
- Improvement of the organizational environment.

The SENAR from Minas Gerais highlighted the following benefits for society:



- Better guarantee of the fulfilment of objectives fixed by law.
- Better possibility of result evaluation and guarantee of correct application of resources.
- Better guarantee of the use of concepts such as ethics, citizenship, sustainable production and reduction of environmental risks.

The SENAI from San Pablo captured the following benefits that deserve to be quoted:

- Clearly defined goals and objectives.
- Adequate environment of teaching/learning.
- Offer of educational products adequate to real needs of customers.
- Systematic monitoring of customers satisfaction.
- Permanent up date of training services.
- Coherence of all training process stages from planning and development to follow up of graduates.

- Shared vision at all levels of the institution.
- Resource optimisation.
- Better communication between departments.

### *2.2.6 Recommendations on the process of quality certification*

"To train, to train and to train." This seems to be the most important recommendation of those who have transited the road of quality certification. The indispensable actions of the process are to train de coordination group, to train the area co-ordinators, to train the employees. The responsible of SENAI Minas Gerais stated that all the processes required a high level of maturation. This maturation will have a lot to do with the training culture and opportunities and with the teamwork.

- To have a good definition of mission, vision, values and to achieve the total commitment of the personnel.
- To create a management team where members know the training business.
- To plan the process as a project.
- To choose on advance the certifying agency in order to create a good communication and work dynamics.
- To train the working groups.
- To facilitate the process standardization.
- To choose a responsible for the quality management with prestige, credibility, knowledge and easy access to workers.
- To insert the process as part of the improvement of the institution.



The SENA Regional Office of Antioquia suggests to manage the implementation process with assigned resources, goals, achievement indicators, administrative and management structure. It also suggests to co-ordinate the quality project with the institutional policies.

In addition, the SENAI from San Pablo, probably conscious of the great effort implementation implies, included in one of its recommendations "to celebrate certification."

### *2.2.7 Challenges posed by the quality management process*

This section can resume in a certain way the lessons learned along the process. Most of the challenges have to do with the institution's internal level. To achieve commitment and to involve everybody seems to be one of the challenges to work on. But in our understanding, other challenges related to the maintenance of the system and, more over, to achieve a real change in the culture and practices of the institution emerged. The answers of the survey are quoted in the following list:

- To achieve the commitment of employees.
- To accept the paradigmatic break and the standard adaptation to an educational institution.
- To define the concept of customer in education.
- To interpret the ISO standard requirements on educational terms.
- To obtain consensus on the standardization of operational procedures.
- To achieve the personnel participation out of genuine interest.
- To make the entrepreneurial approach compatible with the educational approach on the standard interpretation.
- To assimilate the derived changes of the implantation.
- To overcome the uncertainty produced by changes.
- To understand standards as important management tools.
- To develop a true "Quality Culture" and to change the traditional references and patterns.



But the answer of SENATI resumed a key aspect of the processes of changes "we have to have a quality system where the most important thing is the people." This statement goes together with the idea of a more flexible institution which detects needs and is adaptable.

**Basic lessons from the European experiences**

They are resumed in three big areas. In the first place, the standardization processes in these experiences have created a tension between the typical desegregation of standardised description and the need of a practical and functional process. This is well resumed in the idea of balancing a certain level of pragmatism against the fundamentalism that represents standardization in its

extreme way. In order to carry out processes, the redaction cannot be done looking constantly for perfection.

In the second place, national institutions are required to give signals to enterprises and workers regarding the reliability of the processes and the quality of results. In many cases, governments are looking for signals of certainty on the institutional mechanisms of resource assignation and execution of public policies on training.

In the third place, quality management and the consequent quality certification of training institutions offers a good tool to maximise the institutional capability of capturing and disseminating knowledge on work. One thing is the quality management and another is the quality of the performance of the graduate, which is measured in terms of labour competency.

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# 3. Three quality standards in perspective

This last section is included with an illustrative aim. It seeks to contribute to clarify the kinds of standards related to vocational training and those that can be applied in the institutional quality management and processes related to vocational training. In the first place, the standard on institutional management (ISO 9000:2000) is analysed, as well as the synthesis of two proposals adapted to educational institutions. In the second place, the standard related to personnel training processes within an organization (ISO 10015) is presented. Finally, the standard on certification of persons (ISO 17024) is analysed.

## 3.1 Standard on quality management



Among the standards published by ISO, the more internationally known is the group of ISO 9000 standards. This group of standards describes the way of carrying out Quality Management and the set up of the quality systems and continual improvement of an institution. Along these lines, the ISO 9000:1994 has been used and the ISO 9000:2000 is actually in use. These standards are centred in the processes, independently of the product or specific service of the institution.

The group of ISO 9000 standards describes the requirements for the implantation of a model of quality management in a given organization (See Annex 1). The 2000 version of this series of standards has been published emphasising its application to service organizations. In this way, it seeks to decrease the need for creating specific standards for each industrial level, as would be the case of educational and training institutions.

The quality management model of the ISO 9000 standards has the objective of achieving a greater efficiency in its processes and provides products and services that satisfy the customer, improving the quality and competitiveness of the organization.

According to Baeza and Mertens[12], the difference between the 1994 version of the quality management system and the 2000 version is that the first one standardises and assures quality through a static vision while the other is supported by an integral and dynamic conceptualisation of continual improvement directed towards the customer satisfaction.

The ISO 9000:2000 has the objective of promoting an organization which provides a product or service according to the customers requirements and regulations achieving customers satisfaction as well as the prevention of disagreements and a process of continual improvement.

**ISO 9000:2000 and the human resource management based on labour competency**

A key aspect of the last version of the ISO 9000 standard is its connection to the human resources management systems. In effect, within the requirements of the standard in terms of personnel the provision of competent personnel is stipulated. The organization must determine the required personnel competence profiles and evaluate the effectiveness of the training provided for those functions that directly affect quality. The enunciation of the standard represents a transcendental change because of the inclusion and treatment of the human resource in the quality management system.

ISO standards and training:

The 2000 version of the ISO 9000 was more specific than the 1994 version in terms of the characteristics of the personnel of a certified enterprise. The 1994 version requested "documented procedures in order to identify the needs of training and to train all the personnel who works in activities that affect quality. The personnel assigned to specific tasks must be qualified through education, training and/or adequate experience according to requirements."
Regarding resource management the 2000 version states: "the personnel who works in activities that affect the quality of the product must have competency based on education, training, and appropriated abilities and experiences."

The inclusion of labour competencies in the ISO 9001:2000 standard is an important step towards the creation of an integral concept of quality and fundamentally towards the practice of human resource development.



[12] Baeza and Mertens: 2000.

This process implies a new complexity introduced in the ISO quality standards. It is not the same to treat and evaluate processes than individuals. The challenge will consist of not loosing the strategic approach, for what and whom is the competence model, and to maintain a flexible model which understands the human resource as a group of individuals with different needs of development and objectives which must agree with those of the enterprise.

As INTECAP[13] states, "the 2000 version includes fundamental aspects of the human resource management as the involvement of the personnel and the physical and human conditions of the working environment. It places labour competency in coordination with the other sub systems of human resource management.

The new version of the standard includes:

1. Identification of the competency profiles.
2. Evaluation of the training effectiveness.
3. Coordination with other subsystems of human resource management.
4. Selection and assignation of personnel according to shown competencies.
5. Training oriented towards competencies development.
6. Assurance of personnel consciousness regarding the importance and relevance of their activities and contribution to quality objectives.
7. To maintain the actualisation of personnel educational, training, qualification and experience records".



**A specific standard for the vocational training process?**

Even if, as noted before, the 2000 version of the ISO 9000 was designed with the intention of facilitating its application to organizations of other sectors of the industry, the training institutions which have applied the standard have to seek for equivalencies for the different terms used in the organizational environment such as customer and supplier. Within training institutions, an interesting discussion has been centred on the problem of who is the customer: is it the participant or the enterprise? And around what is the product: is it the training programme or the trained and certified worker?

[13] INTECAP 2001

**Towards a ISO 9000 in educational institutions**:

In October 2001 in Birmingham, England, during the meeting of the Technical Committee 176, a group of Mexican organizations took the initiative of proposing a project guideline for voluntary use in order to facilitate the application of the ISO 9001 in the organizations of the educational sector at all levels and modalities.
The later adhesion of other countries provoked the approbation by the ISO Technical Council of the IWA-2 project "ISO 9001:2000 application in education" co-ordinated by Mexico. The mechanism to achieve an international agreement was a workshop established by ISO (International Workshop Agreement – IWA).
The IWA 2 guideline seeks to support Mexico and other countries in their programmes of quality educational improvement.

**Programme of Modernisation of Technical Education and Training of the Public Education Secretary. PMETyC Mexico 2003.**



Obviously, the answer has been discussed in the documents on quality system of the certified institutions and in the definition of processes and quality manuals. Nevertheless, two examples have been chosen to show the adaptation efforts. The first one is an adaptation conducted in New Zealand on the ISO 9000:1994[14]. Its main features are described in the Annex 2 at the end of this document. The second one is more recent. It was elaborated by the ISO International Workshop IWA-2 created by the initiative of the PMETyC of Mexico. It was based on the ISO 9004:2000 and its purpose is "to provide directions to the voluntary application of the ISO 9001:2000 on educational organizations that provide educational services at all levels. These directions do not add, change or modify the requirements of the ISO 9001:2000 and are not thought for contracts, conformity assessments or certification purposes" (See Annex 3) . The project is now in its international stage and is co-ordinated by the administrative unit of the PMETyC.

Also, in Latin American countries, adaptations of the ISO 900:2000 standard have been conducted. In Chile, the **Chilean Standard NCh 2728:2002** directed to the Technical Training Agencies that conduct training activities for enterprises and workers in general. The standard is oriented to promote the orientation of training towards the coverage of needs and expectations of customers. Since these needs are permanently changing, OTECs are asked to update their offer permanently.

[14] *Guidelines for the quality standard systems AS/NZS ISO 9001:1994 for education and training. Australia Standards. New Zealand Standards.1995.*

**Definitions of the NCh 2728:2002**

**Customer:** Worker, enterprise, employer, internal customer (within the training programmes), organization or group of enterprises that asked for a training service. The competent authority can also be seen as a customer

**Participant:** Person or worker who assists to a training activity.

On the section on human resource management it is emphasised the fact that the high management of the training agencies has to ensure the availability of the necessary competences to enable the effective operation of the organization. The model of human resource management implies the analysis of the future needs of competences and compares them with the available ones so as to elaborate the plans for personnel development.

When this document was written, the complete text of the NCh 2728:2002 was available at: www.sence.cl/normacalidad

Other adaptations of the ISO 9000:2000 for educational institutions known during the elaboration of this document are: the Argentinean Standardization Institute IRAM "Guide for the interpretation of the IRAM-ISO 9001 for education", the Commission of Technical and Commercial Regulations INDECOPI of Peru "Guide for the application of the NTP-ISO 9001:2001 in the Education Sector", and the Spanish Association of Standardization and Certification - AENOR. The Peruvian Standard does a complete enumeration of the different processes to be controlled in the development of the educational service, such as the processes of student admission, curriculum design, evaluation system, graduate follow up, budget management, equipment, student services and educational supervision as well as continuous monitoring systems.



The Spanish adaptation developed an approach in which the quality standard has the purpose of offering reliability to customers, including students, parents, tutors, internal customers, enterprises and society in general, ensuring that services satisfy customers. It clarifies that satisfaction includes complying with current legislation and regulations and with internal regulations of the organization.

### 3.2 The standard for the processes of training and development of human resources

This standard (ISO 10015:1999) refers to the process of human resources management of the organization, particularly, to the training and development stage. It is not used to certify. Its purpose is to establish directives on training. The constant evolution and changes of the market, technology, innovation and customers requirements and expectations which can impose to the organization the necessity for an analysis of needs regarding competences is the starting point of the standard.

Personnel training is an effective option to overcome the changing context mentioned above, allowing for the closure of the gap generated between required and existent competences in an organization. It defines training as a process that produces and develops knowledge, know-how and necessary behaviours to fulfil requirements. It understands competences as putting into practice the knowledge, know-how and behaviours during the execution.

Therefore, the training process would make it possible to improve the organization's capabilities and to achieve the organization's objectives regarding quality, producing and developing competences. If training is understood as a continual progress factor, it emerges as an effective and productive inversion (see annex 4: Document: Quality Management. Guidelines for training. ISO/DIS 10015:1999 standard).



### 3.3 The certification of bodies operating certification of persons

This year was established the ISO 17024:2003 standard "General requirements for bodies operating certification of persons" based on EN 45013[15] which is applied in Europe since 1989. Even if the ISO 9000 standards do not apply to individual competence recognition, the application of the quality certification logic has been widening its ratio towards the agencies in charge of the competence certification. In fact, the certification of persons has been a field of specialised work in Europe. It was extended together with the national standard model in England, Scotland, Wales and Ireland.

[15] This is a voluntary standard issued by the European Standard Institution. Its members are national organizations in charge of accreditation in 18 European countries: Germany, Austria, Belgium, Denmark, Spain, Finland, France, Greece, Holland, Ireland, Iceland, Italy, Luxembourg, Norway, Portugal, United Kingdom, Switzerland and Sweden.

The 45013 standard is used in Europe specially for the recognition of acquired competences as a result of experience or informal training actions. It applies to third part agencies that certify those competences independently on how they were acquired.

The ISO 17024 standard specifies the requirements to assure that the certification agencies that conduct the processes of certification of persons conduct their operations in a consistent, comparable and reliable way[16]. This standard does not deal with the quality management system applied by the agency. In other words, this standard does not substitute the eventual ISO 9000 certification.

The standard seeks to maximise the reliability that the certification agencies have among the interested parties in the certification through their independence and impartiality regarding candidates and certified persons. It also asks for the necessary measures to ensure an ethical operation.

An aspect to highlight regarding the usual discussion generated in the institutional certification model is the expressed mention on the standard regarding the certification agency: "it cannot offer or provide support to others in the provision of training services unless it demonstrates that training is independent of evaluation

**Some terms of the ISO 17024:2003 standard**:

**Certification process**: All the activities conducted by a body in order to assess a person's competency. It includes evaluation, decision over certification and re-certification, use of certificates and logotypes/trade marks.

**Certification arrangements**: Certification requirements for a particular category of people who will go through the same certification procedure and standard application.

**Certification system**: Set of procedures and resources needed to carry on the certification process that leads to a competency certification, including maintenance.

**Competency**: Proved ability to apply knowledge and/or abilities and capability of proving relevant personal attributes according to the certification arrangement.

**Evaluation**: Examination process to assess a person's fulfilment of certification requirements. It leads to the certification decision.

**Exam:** Mechanism that is part of the evaluation. It measures the competency of a candidate using one or more, oral or practical, means.

**Qualification:** Proof of the attributes based on education, training or labour experience.



[16] Certification for persons –ISO/IEC DIS 17024. General Requirements for bodies operating certification of persons, ISO Bulletin, October 2002.

and certification of persons and assures impartiality, objectivity and confidentiality." In the European experiences of certification of persons, the remarks regarding the independence of the training and certification processes (not the complete separation of the institutions) is growing in order to guarantee the transparency of the process.

A 1998 research of the European Union concluded: "This standard is not widely used, but it could be a useful tool to achieve later processes in terms of quality guarantee of the competence certification process. It can also contribute to the construction of an European accreditation system."

There is another interesting aspect related to this standard which underlines the use of occupational standards or the so called "labour competence standards." The quality scheme in the application standards is centred in the competence certification. A competence certification based on an approved standard is a performance quality guarantee. The mechanisms of competence certification and the ways in which standards are created and put into practice are issues to discuss and document.

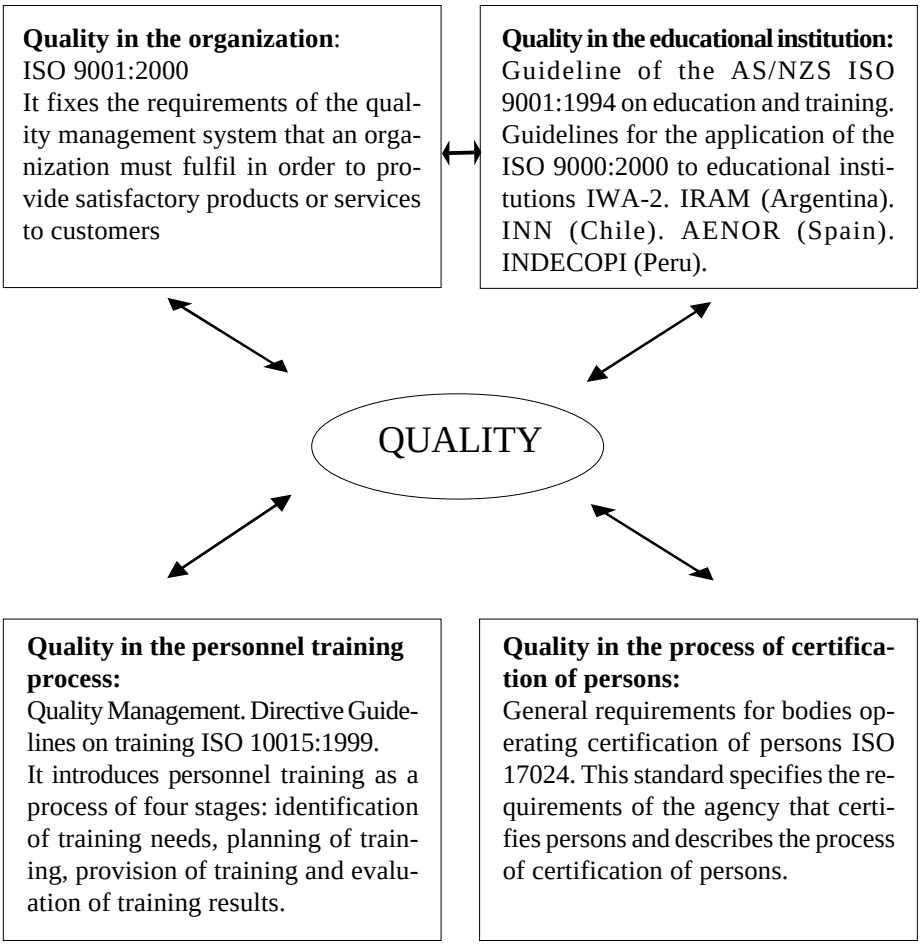
A general description of the content of the standard can be consulted in the Annex 5 "General requirements for bodies operating certification of persons", included in the ISO/IEC DIS 17024 standard.



### 3.4 Concluding Remarks

A panoramic view of the standards referred in the above sections shows a repertoire of options regarding quality management in different aspects of training. In the effort of implementation it is important to consider the use quality management represents for the institution and the applicability of the standard, as well as, its insertion in the organizational environment and culture.

The quality model proposed by the ISO 9000:2000 is based on a process management and concedes importance to customers' satisfaction and to the enterprise-customer relationship. It makes clear the necessity of personnel training in the organization where the standard is implanted. This standard does not specify the required training neither the guideline to identify training needs. Nevertheless, the ISO 10015 standard "Quality Management. Directive Guidelines for training" offers a series of guidelines regarding personnel training. This standard proposes a four-stage process: definition of training needs, training design, training promotion and training results evaluation.






Personnel training in an organization is an option to improve the organization's capabilities and achievement of quality objectives. At the same time, the project of the General requirements for bodies operating certification of persons ISO 17024 indicates the requirements which certification agencies should fulfil on the processes of certification of persons. It can be a good complement for the institutions that provide education and are interested in the application of the quality model ISO 9000 because it gives guidelines directly related to the competence certification to the customers of these organizations. This is true specially in institutional models, which have services of evaluation and certification of persons, or even in the centres of the institution, which can provide certification services maintaining adequately documented processes in order to ensure the transparency of the evaluation.

The standard can also be useful for the certification of the personnel trained according to the project of the standard "Quality management. Directive guidelines on training" (ISO 10015), as well as for persons who have not received a training course and have acquired training on experience. The certification of competences usually implies the formal, public and temporal recognition of the labour capabilities of the person. It is important to underline that the certification of persons approach is more close to the idea of previous knowledge recognition because it includes the evaluation of competences of the candidate without considering how they have been acquired.

The concept of quality management implies creating a set of policies and actions with the support of the direction which facilitate the mobilisation of the VTIs towards a quality culture that goes beyond the lone certification process in itself. This is a crucial issue in the adoption of quality management; the task goes beyond the documentation of processes. It implies a commitment to a new way of doing things in order to achieve objectives from the beginning. This commitment involves the whole organization.

Training is part of the needs of organizations that adopt quality management. This reinforces the role of the VTIs as providers of training services and reveals the necessity of a provision of quality services. At first sight, it can be believed that the certification process implies a large set of process creation and documentation. This was one of the strongest critiques to the ISO 9000:1994 standards. As a consequence, the 2000 version is focused on the creation of the concept of continual improvement centred in the optimisation of processes without forgetting the personnel training needs, the personnel participation and the orientation towards customers' satisfaction. The certification process is an opportunity of institutional learning and of knowledge management applied to training.



The adaptation of the ISO 9000 standard to educational institutions is requiring more work lately. In this document two related experiences have been presented. Nevertheless, the experiences of certified institutions regarding the elaboration of their quality handbooks have to be considered. These handbooks represent, undoubtedly, an extensive accumulation of knowledge on training. Much of the institutional knowledge and the definition of processes, interactions, inputs and products were deposited in the handbooks. This effort is offered to all collaborators of the institution to facilitate interaction and work. The use and creation of the documented handbooks and procedures, as well as the continual improvement, are essential parts of quality management.

# Annex 1

## THE INTERNATIONAL STANDARDIZATION ORGANIZATION (ISO) AND THE ISO 9000 FAMILY OF STANDARDS[17]

The ISO elaborates international standards and guidelines taking into account the interests of users, suppliers, scientific communities and governments. These standards have a wide scope covering all fields, with the exception of the electric and electronic technology that depends of the IEC (International Electrotechnical Commission).

It also establishes standards and guidelines to evaluate conformity. ISO elaborates the requirements of products and systems certification, as well as the requirements for the accreditation of system, personnel, product certification agencies and the calibration and rehearsal laboratories accreditation through the Conformity Assessment Committee (CASCO).

> The International Standardization Organization (ISO) is an international federation of national standardization associations which has the purpose of promoting standardization and related activities in order to facilitate the exchange of goods and services and contribute to international co-operation at the scientific, economic, technological and intellectual level.
> www.iso.org



Among the standards published by ISO, the most internationally known is the ISO 9000 family of standards. This group of standards describes the way to carry on quality management and the creation of the corresponding quality and continual improvement systems in a given organization.

In 1987, the first version of the ISO 9000 standards was published. These standards are the reflection of the international consensus of specialists in this field. The Technical Committee No. 176 (ISO/TC "Quality Management and Quality Assurance") created within the ISO in 1979 was in charge of the elaboration of generic standards with international application regarding this issue.

[17] UNIT: 2002.

The ISO 9000 standard revision is based on the following eight quality management systems established in the ISO 9000 and 9004 standards:

- Customer focus
- Leadership
- Involvement of people
- Process approach
- System approach to management
- Continual improvement
- Factual approach to decision making
- Mutually beneficial supplier relationship

In 1994, the first revision of the standards was finalised (ISO 9000:1994) and then a second revision was conducted which was published in December 2000 (ISO 9000: 2000). In this revision it was important to ensure that the standards were applicable to all type and size of organizations. The intention was also to avoid the creation of quality management systems for specific sectors.

The ISO/TC 176 Committee also elaborates particular management programmes based on the ISO 9000:2000 for sectors that need them. Other initiatives were taken into account in the revision of the standard such as the bases for the National Quality Award or the Total Quality Management programmes.



**The approach based on processes**

This is probably the most important feature of the ISO 9000 standard. Among the ISO 9004-2000 family of standards (Quality Management Standards. Directives for the improvement of performance) this approach is specified in the following way:

"This standard promotes the adoption of an approach based on processes to develop, implement and improve efficiency and efficacy of a quality management system, in order to provide satisfaction to all interested parts through the fulfilment of its requirements".

In order to have an efficient and effective functioning, an organization has to identify and manage several interrelated activities. A given activity, which uses resources and manages them in order to facilitate the transformation of inputs into results, is considered a process. Frequently, results of a process constitute directly the inputs of the following process.

The application of a processes system in an organization, together with the identification and interactions and management of these processes, can be referred to as an "approach of processes."

An advantage of this approach of processes is that it provides control over the connection between individual processes within the system of processes, as well as over its combinations and interactions.

When it is used on a quality management system, this approach gives emphasis to the importance of:

- Understanding and fulfilment of requirements
- The need to consider processes in terms of their contributing values
- Obtaining of results based on performance and efficacy of processes
- Continual improvement of processes based on objective measurement

The following standards make up for the ISO 9000:2000:

ISO 9000:2000 (Quality management systems. Fundamentals and vocabulary). It substitutes the ISO 8402 standard (Vocabulary) and it is based in the 9000-1:1994 (Guidelines for system implantation). This standard is not used for certification.

ISO 9001:2000 (Quality management systems. Requirements). It is used to get system certification. It describes the quality management requirements to assess the organization's ability to meet customer satisfaction. This standard substitutes the ISO 9001:1994, ISO 9002:1994 and ISO 9003:1994 standards.



ISO 9004:2000 (Quality management systems. Guidelines for performance improvements). It provides guidelines but it does not describe requirements, thereby, it is not used for certification. It provides guidelines for continual improvement of the organization and satisfaction of all parties. This standard substitutes the ISO 9004-1/2/3/4:1994.

ISO 19011 (Guidelines on quality and/or environmental management systems auditing). It substitutes ISO 10011 (Quality auditing) and ISO 14010/11/12 (Environmental auditing).

# Annex 2

**GUIDELINES ON QUALITY SYSTEMS.**
**PART 5: GUIDELINES FOR THE AS/NZS ISO 9001:1994 QUALITY SYSTEM STANDARD ON EDUCATION AND TRAINING[18]**

The purpose of this standard is to guide educational and training institutions to develop and implement a quality system based on the ISO 9000 standards. This guide does not intend to establish requirements or add and modify requirements already described in the standards. It seeks to facilitate the interpretation and the application of ISO 9000 standards to educational and training institutions. It must not be understood as supplementary standards of the ISO 9000.

For each ISO 9001 requirement, this guide facilitates the interpretation of certain aspects, giving in some cases generic examples, as well as in other cases, explanations and specific examples regarding training institutions.



[18] It is a joint standard of Australia and New Zealand elaborated by the joint technical committee QR/2. Service Quality. It was published on 5 July 1995

| ISO 9001:1994 | ISO 9001: 2000 | Guidelines on quality systems for educational and training institutions (Australia - New Zealand) |
|---|---|---|
| **Provider:** organization that provides a customer with a product. | **Provider:** Person or organization that provides a product | **Education provider**: a school, college, university, training organization, assesment centre; a department or section within a college, university, training organization or assesment centre or a training unit within a company, industry body or governmente department. |
| **Customer**: The receiver of the product supplied by the provider. | **Customer**: Person or organization to whom a product is supplied | **Customer:** a student, a student´s parents or employer; a company or organization with whom a research contract, consultancy agreement or a training contract is entered into; an internal customer (i.e. within the education provider´s own organization); a government, regulatory body, accreditation body and similar; a relevant society group, such as parents and citizens group, and society as a whole. |
| **Product**: result of processes and activities | **Product**: result of a process | **Product:** provision of an educational environment, a curriculum and other resources or community services for enhancement of skills/ knowledge/ understanding/ attitude/ values and also including research outputs. |

# Annex 3

**Terms and definitions for educational organizations on the "Guidelines for the ISO 9000:2000 application proposed on the IWA-2"**

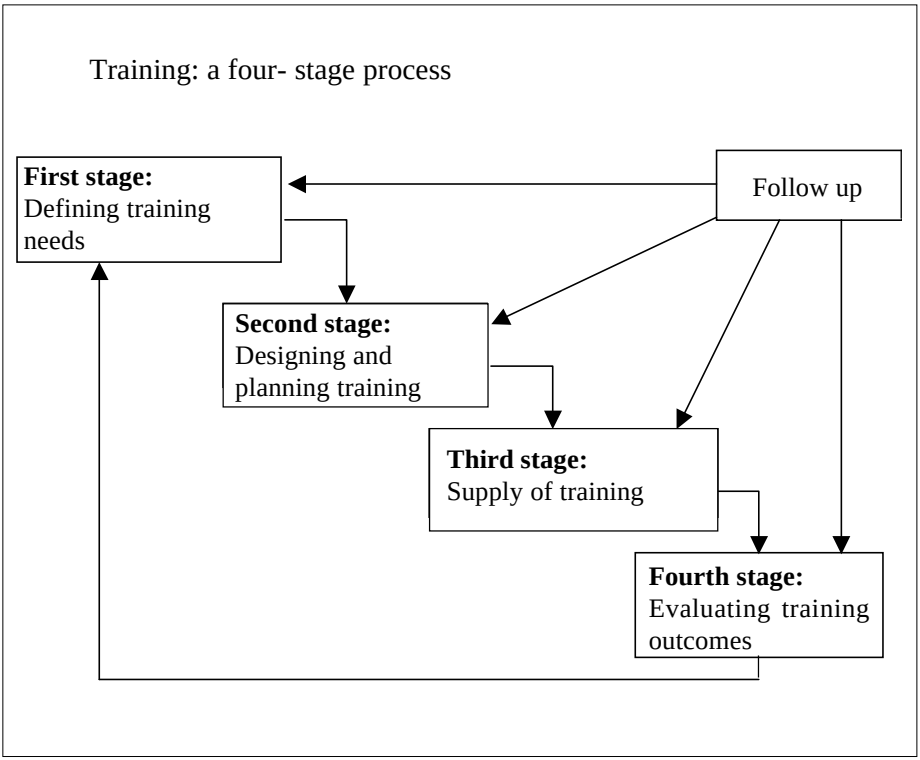
| ISO 9000:2000 | | IWA-2 Proposal |
|---|---|---|
| **Customer** | Organization or individual who receives the product | In the field of education or training a customer can be:<br>**Consumer:** it is usually the student<br>**Customer** or buyer: it is usually a person or agency that finances the student; it can also be the student<br>**Final user:** it is usually the person or the organization that benefits from the acquired learning. |
| **Stakeholder** | Person or group who has an interest in the performance or success of an organization | A stakeholder can be a customer, parents association, other educational organizations or the whole society: a group can involve an organization, a part of each or more than one organization. |
| **Process** | Activity that employs resources and manages them to facilitate the transformation of inputs into results | Process which has the result of an educational product. Educational products cover different type of learning activities such as training, adult education, primary, secondary or university education. |
| **Educational Product** | | Product related to education. An educational product usually involves a service supply that includes intellectual informational software and somehow computer software or documents based on the hardware, which contribute to the transference of information and the permanence of them for future reference |

| ISO 9000:2000 | | IWA-2 Proposal |
|---|---|---|
| **Educational Organization** | | Organization which provides educational products |
| **Educator** | | Person who delivers an educational product to students. The term used varies from country to country and according to the educational level, for example: teacher, instructor, facilitator or professor. |

# Annex 4

**QUALITY MANAGEMENT**
**GUIDELINES FOR TRAINING. ISO 10015:1999**

This standard is designed with the purpose of guiding and supporting organizations in the identification and analysis of their training needs, the design and plan of training, the evaluation of training results, and the monitoring and improvement of the training process in order to achieve its objectives. In its presentation, the contribution of training to the process of continual improvement is highlighted.



The standard defines the scope, the regulative references, the terms and definitions. It describes the general guidelines regarding personnel training of an organization (training understood as a four stages process), training purchase, personnel involvement and finally the four stages of the training processes are detailed.

**The four stages of the training process (ISO 10015:1999)**

**Stage 1: Defining training needs**
The organization should define the competencies needed for each task that affects the quality of products, assess the competency of the personnel to perform the task, and develop plans to close any competency gaps that may exist. The definition should be based on an analysis of present and expected needs of the organization compared with the existing competencies of its personnel.

**Stage 2: Designing and planning training**
The design and plan stage provides the basis for the training plan specification. It implies that defining relevant items (legal, financial and availability aspects) which constrain the training process should be determined and listed in order to design resources.



**Stage 3: supply of training**
The responsibility of the training provider is to carry out all the activities specified for the delivery of the training in the training plan specification. As well as providing the resources necessary to secure the services of the training providers, the role of the organization in supporting and facilitating the training might include supporting both the trainer and the trainee and monitoring the quality of the training delivered. The training support may include activities such as providing relevant tools, equipment, documentation, software or accomodation to the trainee or the trainer, providing adequate opportunities for the trainee to apply the competence being developed and giving feedback on task performance as requested by the trainer and/or trainee.

**Stage 4: Evaluating training outcomes**
The purpose is to confirm that both organizational and training objectives have been met. Within a specified a specified time period after the trainee has completed the training, the management of the organization should ensure that an evaluation takes place to verify the level of competence achieved. Evaluations should be carried out on both short- term and long-term basis and should include the collection of data and the preparation of an evaluation report which also provides an input to the monitoring process.

**Monitoring and improving the training process**
The main purpose is to ensure that the training process, as part of the organization´s quality system, is being managed and implemented as required so as to provide objective evidence that the process is effective in meeting the organization´s training requirements. Monitoring involves reviewing the entire training process at each of the four stages and the identification of further opportunitites for improving effectiveness of any stage. Appropiate records should be maintained of the variois monitoring and evaluation activities conducted.



The ISO 10015:1999 standard does not add or modify the requirements of the ISO 9000:2000 standard. It is a guidance on educational and training aspects included in the standard requirements. It contains recommendations for the development, implementation, maintenance and improvement of strategies and systems for training that affect the quality of products. It can be applied to any type of organization, such as educational organizations, to achieve the training needs of its own personnel.

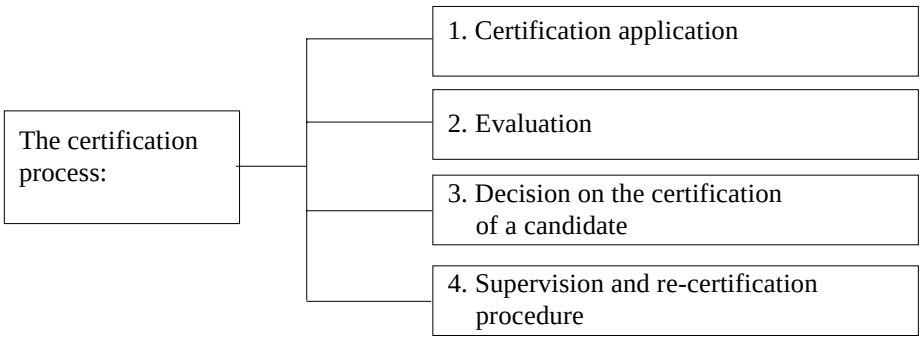
# Annex 5

## GENERAL REQUIREMENTS FOR BODIES OPERATING THE CERTIFICATION OF PERSONS. ISO/IEC DIS 17024[19]

This international standard specifies the requirements for the agency that certifies persons, ensuring that the certification agencies operate in a consistent and reliable way. It is included among these requirements the importance of ensuring that the personnel of the certification agencies guarantee impartiality. It also describes the development and maintenance of a certification scheme for persons. This schema is a management system that allows to carry on the certification process.

The certification process is the process by which the certifying agency certifies that a person fulfils the competency requirements previously specified. Through this process the labour capabilities of a person are formally and temporally recognised no matter how they were acquired.






[19] It was elaborated by ISO7CASCO WG 17. It is a revision of the EN 45013:1989.

Summary of the stages developed in this standard project:

- In the stage of "certification application" the certifying body will provide to the applicant a detailed and updated description of the certification process for each certification scheme as well as a specification of the certification requirements and a specification of the rights and obligations of the certified person. Finally, the body will require from the applicant a form and signature according to specified criteria in the project of standard. The certifying body ensures that the personal data and certificates will not affect the evaluation.

- In the "evaluation" the certifying body has to review the application in order to ensure that it is adequate both regarding the capability of the body of providing the certification as well as regarding the required training. It has to specify the criterion of planning and structuring of the exams, which are part of the evaluation. The form in which the certification body will evaluate the abilities and aptitudes of the candidates according to the requirements of the certification scheme is described. It is specified that the certifying body will adopt procedures that ensure that the evaluation of performance and results are appropriately documented.

- The certification body on the basis of data collected during the certification process takes the decision on the certification of a candidate. Those who take that decision must not participate in the evaluation or training of the candidate. The certifying body provides the certificate maintaining the property. The format and content of the certificate is described. This document must be signed or authorised by the responsible authority of the body.



- In the supervision and re-certification procedure, the certifying body must specify the requirements of surveillance and re-certification according to the regulation documents, ensuring that the certified person fulfils the updated certification requirements. This body will establish procedures and conditions for the maintenance of the certification according to the scheme of certification. The certification body provides a logotype or certified trademark. Certificates and logotypes/trademarks will be documented regarding use, rights and representation by the certification body. The certification body will require that the person signs an agreement on certain aspects specified in the project of the standard. Finally, it specifies the measures that have to be taken in case of inappropriate references to certification or of inadequate use of certificates or trade marks/logotypes.

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300.04.2004