
Presentation

Five years have gone by after the first electronic publishing of this document. During that time, there has been an incredible progress both in terms of conceptual formulations and the application of labour competency.¹ This is why this publication has been made, now printed as well, revising and updating much of the content of the first document. The aim is then to facilitate consultation and provide aid in the first steps of those who, at training institutions or through human resources management, attempt to apply the logic of competencies to work.

Content has been organised in six groups of questions:

- A. Basic concepts on labour competency
- B. Identification of competencies
- C. Standardisation of competencies and quality standards
- D. Certification of competencies
- E. Competency-based training
- F. Competency-based human resources management

¹ This document mainly resorts to the experiences mentioned and described in many texts and means of expression such as the Internet; it does not seek to offer an exhaustive revision, therefore it does not include or quote all experiences.

A. Basic concepts on labour competency



What is labour competency?

1. What is labour competency?

There are multiple and diverse conceptual renderings of labour competency. A widely accepted concept defines it as the effective ability to perform a fully identified labour activity successfully. Labour competency is not the possibility of success at a job; it is a real and proved ability.

A good categorisation of competency, which allows to access definitions in a better way, is the one that distinguishes between three approaches. The first one regards competency as the ability to carry out tasks; the second one concentrates on personal attributes (attitudes, abilities) and the third one, called “holistic”, includes the two previous ones.

Below there appear a number of definitions on labour competency made by experts, national training institutions and national standardisation and certification institutions.

Definitions made by some experts

Some definitions have been selected in order to offer a range of possibilities that is as complete as possible.

*Agudelo:*¹ Comprehensive ability of a person that allows him to have an efficient performance in specific labour situations.

¹ Agudelo, Santiago, *Certificación de competencias laborales. Aplicación en Gastronomía*, Montevideo, Cinterfor/ILO, 1998.

*Bunk:*² A person who has occupational competency has the necessary knowledge, skills and capacity to perform in a profession, is able to solve occupational problems in an autonomous and flexible manner and is able to contribute to his professional environment and the organisation of work.

*Ducci:*³ Labour competency is the social construction of significant and useful learning to perform in a real labour situation. It is obtained not only through formal learning but also - and mainly - through experiential learning in practical labour situations.

*Gallart, Jacinto:*⁴ A group of properties under continuous change that need to be put to the test of solving practical problems in labour situations that create certain degrees of uncertainty and have technical complexity [...]. These properties are not obtained from applying a curriculum [...] but rather from applying knowledge under critical circumstances.

*Gonzci:*⁵ A complex structure of necessary attributes to perform in specific situations. This has been considered a holistic approach in the sense that it integrates and relates attributes and tasks, it enables several intentional actions to occur simultaneously and it takes into account the context and the culture of the workplace. It allows us to incorporate ethics and values as elements of competent performance.

*Le Boterf:*⁶ A construction obtained from a combination of resources (knowledge, know how, qualities or aptitudes and environmental resources - relationships, documents, information, etc.) which are mobilised to achieve a satisfactory performance.

*Mertens:*⁷ He makes an interesting contribution that helps to distinguish between qualification and competency. While we understand that qualifica-

² Bunk, G. P., La transmisión de las competencias en la formación y perfeccionamiento profesionales en la RFA, in Revista CEDEFOP N°1, 1994.

³ Ducci, María Angélica, "El enfoque de competencia laboral en la perspectiva internacional", in: *Formación basada en competencia laboral*, Montevideo, Cinterfor/ILO, 1997.

⁴ Gallart, M. Antonia; Jacinto, Claudia, "Competencias laborales: tema clave en la articulación educación trabajo", in: *Formación basada en competencia laboral*, Montevideo, Cinterfor/ILO, 1997.

⁵ Gonzci, Andrew; Athanasou, James, "Instrumentación de la educación basada en competencias. Perspectivas de la teoría y práctica en Australia", in: *Competencia Laboral y Educación Basada en Normas de Competencia*, Mexico, Limusa, 1996.

⁶ Le Boterf, Guy, *La ingeniería de las competencias*, París, D'organisation, 1998.

⁷ Mertens, Leonard, *Competencia Laboral: sistemas, surgimiento y modelos*, Montevideo, Cinterfor/ILO, 1996.

tion is a group of knowledge and capacities that individuals acquire during socialisation and training processes, competency refers only to certain aspects of the store of knowledge and abilities: the ones necessary to achieve certain results demanded by a specific circumstance; the actual capacity to achieve an objective or result in a given context.⁸

*Miranda:*⁹ In a general way, it is understood that labour competency gathers the attitudes, knowledge and skills that allow developing a comprehensive number of functions and tasks successfully in accordance with the performance criteria that are deemed appropriate in the labour environment. They can be identified in real work situations and they are described by grouping productive tasks according to areas of competency (more or less permanent functions), specifying in each of the tasks the criteria through which the performance can be assessed as competent.

*Prego:*¹⁰ "... those personal qualities that allow to predict an excellent performance in a changing environment that requires multi-functionality. The ability to learn, potential in its broad sense, flexibility and the ability to adapt are more important in this sense than specific knowledge or experience in the management of a certain programming language or an IT tool in particular."

*Kochanski:*¹¹ Competencies are the techniques, skills, knowledge and characteristics that make a certain worker stand out over a regular worker with the same function or work category because of his performance.

The above is a good sample of the competencies approach based on the attributes of the person. It is frequently used in the competency-based processes of human resources management. This approach focuses on the definition of competency as attributes of individuals which allow them to achieve a higher performance. It was originated in the research work of David MacClelland.

⁸ This distinction between qualification and competency has brought up an interesting debate which is well-described in: Rojas, Eduardo, *El saber obrero y la innovación en la empresa*, Montevideo, Cinterfor/ILO, 1999, pp. 242 and ff.

⁹ Miranda, Martín. "Transformación de La Educación Media Técnico-Profesional" in *Políticas Educativas en el Cambio de Siglo. La Reforma del Sistema Escolar de Chile*, Santiago de Chile, Universitaria, 2003 (Cristian Cox, editor).

¹⁰ Muñoz de Priego Alvear, Julián, "Implantación de un sistema de selección por competencias", *Training and Development*, N°10, Madrid, 1998.

¹¹ Kochansky, Jim, "El sistema de competencias", in: *Training and Development digest*, Madrid, 1998.

*Zarifian.*¹² “I understand that competency is taking initiative and responsibility successfully when facing a situation at work, both at the level of the individual and the group.”

Another example of the competencies approach that focuses on personal attributes can be found in the report known as SCANS¹³ which distinguished between two big groups: one base group and another group of mainstream competencies.

**Report of the
“Secretary’s Commission on Achieving Necessary Skills” (SCANS)**

Basic competencies:

Basic skills: reading, writing, arithmetic and mathematics, speaking and listening.

Analytical skills: thinking creatively, making decisions, solving problems, seeing things in the mind’s eye, knowing how to learn and reasoning.

Personal qualities: responsibility, self-esteem, sociability, self-management, integrity and honesty.

Mainstream competencies:

Resources management: allocating time, money, materials, space, personnel.

Interpersonal skills: team work, teaching others, serving customers, developing leadership, negotiating and working with people from culturally diverse backgrounds.

Information management: acquiring and evaluating data, organising and maintaining files, interpreting and communicating, operating computers.

Systemic comprehension: understanding complex interrelationships, understanding systems, monitoring and correcting performance, designing or improving systems.

Technological command: selecting technologies, applying technology to the task, providing maintaining and troubleshooting equipment.

¹² Zarifian, Philippe, *El modelo de competencia y los sistemas productivos*, Montevideo, Cinterfor/ILO, 2001.

¹³ Secretary’s Commission on Achieving Necessary Skills (SCANS), 1991.

Definitions of competency in the institutions involved in human resources training and development

The progress of the concept of competency has facilitated its application from the institutional perspective associated with vocational training. Some definitions coming from two institutional levels related to vocational training are provided below. The first one belongs to the executive bodies of national systems that work in the field of competencies standardisation and/or certification. The second one belongs to the vocational training institutions of the region:

*Australian National Training Authority:*¹⁴ Competency is the ability to perform tasks and duties according to the job's expected standards.

*Ministry of Labour of Chile:*¹⁵ Labour competencies are the ability of an individual to perform a productive function in a variety of contexts, according to the quality requirements expected by the productive sector. As opposed to practical knowledge and aptitudes, which may be validated through diplomas and degrees issued by the technical and vocational education system, competencies require a special system of assessment and certification.

*Qualifications and Curriculum Authority (QCA) of England:*¹⁶ it defines labour competency within the framework of national vocational qualifications.¹⁷ NVQs are competency-based qualifications. They reflect the necessary knowledge and skills to perform in a job effectively and they show that the candidate is competent in the field of work that the NVQ represents.

NVQs are based on occupational standards to describe the competencies that a certain worker should be able to show. Such standards cover the main aspects of an occupation, the ability to adapt to future changes and the necessary knowledge and comprehension to achieve a competent performance.

In the English system, rather than focusing on a definition of labour competency, the concept underlies the very same structure of the standardised system. Labour competency is identified in standards through the definition of the elements of competency (achievements that workers can have at work), the performance criteria (definitions concerning the quality of the performance),

¹⁴ Australian National Training Authority. www.anta.gov.au

¹⁵ Newspaper article concerning the proceedings of the Law of the National System of Competency Certification in 2004. www.mintrab.gob.cl

¹⁶ Qualifications and Curriculum Authority (QCA). www.qca.org.uk

¹⁷ National Vocational Qualifications (NVQ).

field of application (physical area, materials, people and tools with which the worker interacts) and the knowledge required.

In this respect, five levels of competency have been defined. They allow to distinguish the degree of autonomy, the variability, the responsibility for resources, the application of basic knowledge, the range and scope of skills, the supervision over the work done by others and the transferability from one working environment to another.

*Skill Standards and Certification Council (CONOCER) of Mexico:*¹⁸ The productive ability of an individual that is defined and measured in terms of performance in a certain labour context, and not only regarding knowledge, capacities, skills and attitudes; these are necessary but not enough to achieve effective performance.

*Ministry of Education of Brazil:*¹⁹ Ability to articulate, mobilise and put in practice the necessary values, knowledge and skills to have an efficient performance in the activities required by the nature of the job. The Law of basic guidelines in education establishes that a person is competent when he “builds, articulates and mobilises values, knowledge and skills to solve problems –not only routine problems but also unexpected ones– in his field of action”.

*National Qualifications and Vocational Training System of Spain:*²⁰ Vocational competency is the knowledge and skills that allow exercising professional activities in conformity with the demands of employment and production.

The Spanish model includes the concept of vocational qualification, which is defined as the group of vocational competencies that are relevant to employment and that may be acquired by means of modular training or other types of training and through working experience.

*National Institute of Employment (INEM) of Spain:*²¹ Vocational competencies define the efficient exercise of the abilities that allow an individual to

¹⁸ CONOCER, *La normalización y certificación de competencia laboral: Medio para incrementar la productividad de las empresas*, Power Point presentation, March 1997.

¹⁹ Brazil, Law 9.394 of 1996. It establishes the basic guidelines of national education. The guiding principle of the curricular organisation of vocational education is competency-based training.

²⁰ Law 5 of June 19, 2002. On qualifications and vocational training. www.mecd.es/

²¹ National Employment Institute (INEM), *Metodología para la ordenación de la formación profesional ocupacional*. Subdirección general de gestión de formación ocupacional, Madrid, 1995.

perform in an occupation, in conformity with the levels required by the job. “It goes beyond the technical knowledge that refers to knowing and knowing how”. The concept of competency not only includes the abilities required to exercise a professional activity, but also the group of behaviours, ability to analyse, make decisions, transmit information, etc. that are regarded as necessary to perform in an occupation.

ILO, Recommendation 195 concerning human resources development and training: The term “competencies” covers the knowledge, skills and know-how that are applied and mastered in a specific context.

Province of Quebec: Competencies encompass the socio-affective behaviour and the cognitive, psychological, sensorial and motor skills that allow an individual to perform adequately in a certain role, function or task.

*Federal Council of Culture and Education of Argentina:*²² “An identifiable and assessable group of interrelated knowledge, attitudes, values and skills that allow an individual to perform satisfactorily in real working situations, in conformity with the standards followed in that occupational area”.

Definitions of competency in vocational training institutions

SENAI²³ (Brazil) defines competency as the ability of a worker to mobilise the necessary knowledge, skills and attitudes to achieve the intended results in a certain professional context, according to quality and productivity standards. It implies then the ability to act, intervene and make decisions in unexpected situations, mobilising the largest amount of skills and knowledge to handle practical working situations by applying the experience acquired from one context to another.

Moreover, it recognises the existence of *basic competencies* that encompass technical and scientific principles, *specific competencies* that encompass the technical capacities that allow an individual to operate with objects and variables that influence the product’s generation and *management competencies*, which are a group of organisational, methodological and social skills referring to the quality and organisation of work, relationships at work and the response to new and unexpected situations.

²² Res. N°55/96, Consejo Federal de Cultura y Educación, Argentina, *Cinterfor Bulletin/ILO* N°141, December 1997.

²³ SENAI, *Metodologia de Elaboração de Perfis Profissionais*, Brasília, 2002.

SENAC²⁴ (Brazil) considers that competencies are the ability to mobilise knowledge (developed throughout social, school and working life) in order to act in practical working situations. The model of competencies demands the creation of conditions for individuals to articulate knowledge in order to face problems and unexpected situations at work, enabling them to act with a global view and in an innovating and responsible manner.

SENA²⁵ (Colombia) defines it as the group of socio-affective abilities and cognitive, psychological and motor skills that allow a person to carry out an activity, a role or a function properly by making use of the knowledge, attitudes and values he has.

INTECAP²⁶ (Guatemala): Vocational competency is the ability to perform in roles or job positions in accordance with the levels required by the standards established by the job. It implies the ability to carry out a number of specific activities or functions concerning a certain job position.

INSAFORP²⁷ (El Salvador): The attributes that allow a person to carry out the same productive function in different contexts and based on the quality requirements expected by the productive sector. These attributes may be expressed by manual or physical ability; intellectual or mental ability or social or interpersonal ability; i.e. they are expressed in doing, knowing and knowing how.

INA²⁸ (Costa Rica): The knowledge, capacities, psychomotor skills and attitudes required to carry out an efficient productive work, according to the standards defined by the labour market and consistent with the quality demands of products that are generated during the productive activity with the aim of satisfying customer needs.

²⁴ SENAC, *Referências para a Educação Profissional do Senac*, 2002.

²⁵ SENA, Dirección de Formación Profesional, *Manual para diseñar estructuras curriculares y módulos de formación para el desarrollo de competencias en la formación profesional integral*, Bogotá, 2002.

²⁶ www.intecap.org.gt/glosario

²⁷ INSAFORP, *Proceso para la elaboración de programas de formación profesional por competencias laborales*, San Salvador, 2000.

²⁸ INA, *INA's experience in the field of labour competency standardisation, training and certification in the tourism sector*, 2001.

2. How was the competency-based training approach first applied?

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How was the competency-based training approach first applied?

To facilitate an answer, several national cases are introduced in order to explain the characteristics and the objectives sought when structuring their training systems with the labour competency approach. The experiences refer to the emergence of the systems of standardisation, training or certification of labour competencies and not to the theoretical background of the competencies approach.

The *National Qualifications and Vocational Training System of Spain*, created by Organic Law 5/2002, is the result of the work done in the field of training and it begins with the signing of the economic and social agreement between the government, workers and employers in 1984. Subsequently, Spain has had two great national vocational training programmes; the first one in 1993 and the second one in 1998. After these experiences the need for the creation of a National Qualifications System was defined. The national training programmes, especially the second one, aimed at increasing the quality of training, improving the qualifications of the active population, promoting transparency in the labour market and a better structural adjustment between labour supply and demand. A distinctive factor of these programmes is the extensive participation of employers and workers in their design.

This task is particularly important in view of the need to create coordination links between the three main training modalities in Spain, namely:

- Initial vocational training, within the educational cycle and reaching the top intermediate or higher technical level of any profession.
- Occupational vocational training which focuses on unemployed workers with the aim of developing the necessary qualifications for them to return to work.
- Continuing training, directed to employed workers with the aim of updating and requalifying them.

In 1986 the National Qualifications System was created with the main objective of promoting and developing the proposals of integration of vocational training offers, as well as the assessment and certification of the corresponding professional competencies. Then it was amended by the laws of 1997 and 2000. As part of the System, the National Council of Vocational Training is the body that through the participation of social partners provides counseling to the government regarding vocational training.

The System has sought to favour principles such as personal development and the free choice of a profession, equal access to training, tripartite participation (employers, workers and government) and the promotion of economic development.

In 1999 the National Institute of Qualifications (INCUAL, Instituto Nacional de las Cualificaciones) was created as a body of technical support to the National Council of Vocational Training (Consejo Nacional de Formación Profesional) in charge of defining and keeping the National Qualifications Catalogue (Catálogo Nacional de Cualificaciones) updated together with the corresponding Modular Catalogue of Vocational Training (Catálogo Modular de la Formación Profesional).²⁹

Some of the main functions of INCUAL are:

- Define, prepare and keep the National Catalogue of Professional Qualifications updated together with the corresponding training, which is organised in its Modular Catalogue of Training.
- Establish a reference framework of the overall scheduling of all the sub-systems.
- Develop technical activities to support vocational training.
- Run a Professional Observatory that may act in a network with other sectoral observatories.

The National Qualifications Catalogue is a core instrument of the System and it is a shared point of reference for those in charge of the design of training programmes. The model of vocational qualification of the System that was suggested by INCUAL has the following characteristics, among others:³⁰

- It is an addition to the appropriate competencies for production and employment.

²⁹ INCUAL, *Sistemas Nacionales de Cualificaciones y Formación Profesional*, 2003.

³⁰ INCUAL, *op. cit.*

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- Its content will reflect the real needs of the systems of goods and services production.
 - It will determine those abilities and knowledge that may favour workers' adaptation.
 - It will have a modular internal structure.
 - It will have an associated level of qualification.
 - It will have elements to assess individuals' competencies regardless of the manner in which they were acquired, as well as assessment criteria that may ensure the validity, reliability and technical accuracy of such assessment.
 - Experts from the different sectors and social partners will take part in its design.

The programme on *Continuing Education and Training Chile Califica* (Chile Qualifies) has been working since the end of 2002. Its main objective is to set the bases of a system of continuing learning and training, with the participation of the private sector (employers and workers). The programme has four components: a) creating new opportunities of continuing education and training; b) improving the quality and increasing the coverage of technical and vocational education; c) establishing the instruments that support the provision of continuing training services; and d) a component of institutional strengthening.³¹

A key component of the system's development is the articulation between the different educational levels, not only to facilitate upwards mobility and the entrance and re-entrance of participants but also to provide a relevant response to the training needs of the entrepreneurial sector by means of training.³²

It is precisely component c) that includes the development of a national framework of competencies. And to that effect the programme works on the identification of standards, the design and the execution of programmes concerning training, the assessment and certification of labour competencies in nine sectors where pilot experiences are carried out in areas such as gastronomy, gas and electricity, mining, hotel, incoming tourism, information technology, fruit production, metal-mechanic industry and viticulture industry.

This component takes advantage of the results obtained by means of a project geared to the development of the competencies approach that was fi-

³¹ World Bank, *Lifelong learning and training Project*, Chile, 2002.

³² OECD, *Revisión de políticas nacionales de educación*, Chile, 2004

nanced by the IDB and that finished in 2000. Such project achieved the identification of competencies and the application of assessment and certification methodologies in sectors such as mining and gastronomy. The programme Chile Califica has benefited from those results.

The vision on the foreseeable situation by the end of the project in the year 2008 describes the Chilean educational scenario with a technical secondary education in articulation with higher education in terms of the competencies that are acquired and recognised at each level. Likewise, mechanisms to identify competencies will be tested and used. In addition, the bodies that provide training will have developed their ability to design and implement competency-based training that is highly relevant to cater for the needs of target sectors. There will be procedures through which competencies acquired outside educational centres can be recognised, thus enabling those who are assessed and obtain certificates to go on with their studies. As a consequence of the programme the schooling level of adults who have not yet completed their compulsory basic education (eight years nowadays) and/or their secondary education will increase. There will even be a chance to level up basic or secondary education at the same time labour competencies are being acquired.

The impacts on productivity will be felt with the availability of workers with better qualifications and the required competencies. These workers will appreciate the benefits of the project since they will have access to better job positions, their development paths will be defined and there will be an improvement in their wages.

When these impacts are taken into account it becomes necessary to review the reasons that triggered the implementation of this project. Such reasons may be summarised as follows:

- The educational system may not be contributing to the development of the skills and abilities required by the challenges posed by trends such as globalisation, technological change and the organisation of work. After the application of the International Adult Literacy Survey³³ in the year 2000, it became clear that there was a significant gap; nearly a third of the adults who had completed secondary school achieved a level of performance 1 in the quantitative area of the survey.³⁴

³³ Such survey, conducted by OECD, was applied in Chile in 1998.

³⁴ Level 1 is the lowest level and it barely comprises functional literacy: in terms of writing, this level tells that the person can read the alphabet and knows how to read but cannot process the most straightforward instructions in a written text.

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- The estimates obtained through the International Adult Literacy Survey show higher probability of unemployment at lower levels of competency.
 - The need to reduce the social deficit suffered by 4.5 million adults who have not completed the eight years of basic education and by at least 2 million who have not completed their twelve years of secondary education.
 - Different degrees of quality and relevance among bodies which provide training. This has triggered the appearance of support mechanisms to devise training programmes geared to quality management, among other issues.
 - The absence of mechanisms that may allow to recognise and value the competencies acquired by workers throughout their experience prevent the labour market from handling signals of transparency different from the academic credentials and facilitate the appearance of distortions that may affect negatively the access to employment and equal opportunities.

*National Vocational Qualifications in the United Kingdom:*³⁵ The improvements introduced in the English educational model from the early eighties, which resulted in educational reforms towards the middle of the decade, focus on the following objectives:

- Creating a more competitive workforce in the international scenario.
- Having more flexible manpower.
- Giving credit and practical support to the concept of continuing training, without admission requirements and with more flexible and accessible training methods.
- Changing from a supply-side training system into another which reflects the needs of the labour market and responds accordingly.
- Developing a training system that is efficient and profitable, with a well-earned reputation and with the same quality as that of academic training.

In that sense, in 1986 the National Council for Vocational Qualifications (NCVQ) was created to reform the system of vocational certifications that existed in England, Wales and Northern Ireland.

³⁵ Based on: NCVQ, *Las titulaciones profesionales en Inglaterra, Gales e Irlanda del Norte*, Londres, 1995. Hanson, Mike, *Lecciones y experiencias del desarrollo de la educación y la capacitación basadas en competencias en el Reino Unido*, CONALEP, 1996.

NCVQ was created after a revision of the Vocational Certifications³⁶ which exposed the need to put in practice a series of urgent actions to achieve:

- a national manpower with a larger number of qualified personnel;
- certifications that are directly based on the levels of competency required by the job;
- a simplified and rationalised national certifications framework;
- higher quality and soundness in assessment and certification;
- putting an end to the division between academic and vocational certifications.

Before the reforms introduced in the eighties there were different types of certifications in the United Kingdom. In general, the “certifications jungle” was not well understood and almost everyone agreed on the need to rationalise and simplify the system, so that it would become more attractive and accessible for students or candidates and, at the same time, more related to employment needs.

Nowadays there are three ways to obtain a certification. Apart from the traditional educational certifications awarded by schools and institutes, there are NVQs and GNVQs.

The National Vocational Qualifications (NVQ) establish the standard levels of performance for the different specific professions. As they are based on observing what actually takes place at work, the NVQs are designed to provide open access to assessment and to facilitate learning for the personnel throughout their working life.

The General National Vocational Qualifications (GNVQ) award certification according to the knowledge and skills that are professionally relevant and that have been acquired during preparing for entering the labour market, or in order to progress towards higher education. GNVQs are mainly conceived to be obtained through programmes of elementary vocational education that take place either at schools or colleges.

The above does not imply that the United Kingdom has lacked a system of vocational qualifications during the 1985-1986 period. In fact, the existing

³⁶ In the Mexican model and in Spanish literature, the term “Calificaciones” (Qualifications) has been used instead of “Titulaciones” (Certifications); in this case we keep the term employed in the source document.

qualifications had a high reputation at an international level. However, a different method was needed. A method that would provide the levels of participation and quality of results that was demanded by education and training in the ever-changing labour world. It was the time for a cultural change.³⁷

The key point of the British system lies in the fact that it has been created by people who will use it and benefit from it. This gives entrepreneurs and workforce representatives a major role in the design of the new vocational qualifications.³⁸

In 2000 and 2002 some modifications were made into the system; for instance, the Sector Skills Councils were created with the aim of reducing the existing lack of competencies and anticipating their future evolution by keeping workers and enterprises informed. The Councils were oriented towards improving sectoral competitiveness by facilitating improvements in the training offer and the occupational standards.

The National Qualifications system is based on competency standards governed by entrepreneurial organisations. Such standards reflect current and future needs of enterprises in terms of productivity and competitiveness. The standards and qualifications that are thus integrated are established according to competencies that individuals may have and may prove to have.

The development of the competency standards set by national vocational qualifications is bolstered by the National Qualifications Authority,³⁹ which, among many other educational functions, is in charge of competency standards and promotes a number of Awarding Bodies and Assessment Centres, handling the necessary mechanisms to ensure quality by means of an external control system.

The State, in turn, plays its role in the system through the Ministry of Education and Skills and by supporting the creation of Sector Skill Councils which have also the support of the Sectoral Agencies for the development of competencies. Councils may also be formed in sectors that are important from the economic or strategic point of view. The Council must be capable of exercising leadership and being convincing for the workers of such sector and have a technical team that may facilitate relationships with entrepreneurs and the

³⁷ Taylor, Marie, “Educación y capacitación basadas en competencias: un panorama de la experiencia del Reino Unido”, in: *Formación basada en competencia laboral*, Montevideo, Cinterfor/ILO, POLFORM/ILO.

³⁸ Idem.

³⁹ Qualification and Curriculum Authority (QCA). www.qca.org.uk

coordination of actions geared to achieve the priorities of the sector in terms of the required competencies.

Australian National Training Authority: The earliest background to this may be found in a document issued by the Australian Council of Trade Unions (ACTU), which in 1987 expressed its agreement to reform the certification system of the country and, additionally, it requested that greater efforts be made in terms of training at enterprises.

There followed a number of government documents: *Skills for Australia* (1987) was the first official statement made by the government policy on labour skills training and their role in the structural change in the Australian labour market. *Industrial training: the need for a change* (1988) denounced that training was unbalanced at the entrepreneurial level and that the environment at the workplace was usually discouraging for training. In the document *Improvements in the Australian Training System* (1989) the government expressed its will to encourage competency-based training as part of the larger reforms aimed at improving the quantity and quality of training.

In 1990 a governmental mission was organised to become in touch and do research with diverse training experiences abroad and stated in its report (COSTAC) that a competency-based approach to education and training, guided by the standards set by enterprises, would help to tackle the hurdles of vocational training. Later on, the guidelines for the implementation of the system were published.⁴⁰

Occupational Competency Standardisation and Certification Council of Mexico: The diagnosis made on training, together with a clear view of the changes that were taking place in that environment in terms of economic relationships and in the labour market, bolstered the design and set up of the project of Modernisation of Technical Education and Training. For its execution, the Mexican Government created the Occupational Competency Standardisation and Certification Council on August 2nd, 1995.

The need to upgrade and reform the training system stems mainly from the fact that a very important change in world economy was taking place, characterised by the transition from a supply-side economy to a demand-side one.⁴¹

⁴⁰ Gonczi, Andrew, “Enfoques de educación y capacitación basada en competencia: la experiencia Australiana”, in: *Formación basada en competencia laboral*, Montevideo, Cinterfor/ILO, 1998.

⁴¹ Ibarra, Agustín, “El Sistema Normalizado de Competencia Laboral”, in: *Competencia laboral y educación basada en normas de competencia*, SEP, CONOCER, CONALEP, 1996.

Secondly, the transformations in the market forced enterprises to adopt flexible production systems which, in turn, required flexible and open organisational schemes. They are based on working networks and teams and not so much in the atomistic and isolated concept of the job position. Thirdly, a transformation in the content of job positions was taken into account. In a flexible production model individuals have to be capable of incorporating and contributing with their knowledge to the production process as well as taking part in the analysis and solution of problems that hinder quality increase and productivity within the enterprise.

In those times, training diagnosis in Mexico had the following characteristics:

- A supply-side training approach. Programmes are designed, applied and assessed at the academy or by the human resources departments of enterprises.
- The disagreement between the organisation of training services arranged according to special fields and, in some cases, according to job positions and the current demands of the population and the productive plant. Changes in occupational profiles are increasingly frequent in the labour world.
- Programme rigidity. The traditional training system is developed through long programmes that lack flexibility mainly because they were designed with just one entrance and just one exit. Therefore, in the case of the need to update only some knowledge, there is no other way than to go through the whole programme and repeat contents already known by the person.
- Lack of knowledge about working experience. When faced with admission barriers, the worker resorts to informal mechanisms or takes advantage of the spaces offered by the job to acquire the knowledge that may result in a better performance. However, this knowledge obtained through experience is not recognised officially because there are no mechanisms to do so.
- Limited and scarce information about the labour market. As usual, when an individual applies for a job at an enterprise he is not asked to provide any diploma to certify his training. However, mainly at operational levels, a secondary education degree is requested in order to make sure that the candidate has the general educational level that may enable him to perform in an occupation with certain degree of efficiency.

The diagnosis on vocational training resulted in the design of a wide-scope Programme of Modernisation of Technical Education and Training (PMETyC). It included a component that focused on the Occupational Competency Standardisation and Certification System. The diagnosis that supported this programme also revealed the existence of:

- Poor worker preparation offered by vocational education and training.
- Supply-side programmes lacking flexibility and relevance for the ever-changing labour world.
- Different degrees of quality in training programmes without measurable objectives to assess the quality of their products.
- Inadequate institutional framework for the participation of the private sector in the design and provision of training.

The Standardised System of Occupational Competency Certification was designed to have the following characteristics:

- It is focused on the demand; based on results and formed by the users themselves.
- It may allow for greater institutional coordination in a medium term, as well as further permeability between work centres and the training offer.
- It may provide the market with faithful and timely information concerning the skills of individuals at the workplace and it may orient decision-making of economic agents.
- It should provide flexible programmes with greater quality that are relevant to the needs of the population and the productive plant.
- A system with more updating and adapting possibilities.
- It should regard training, not as a finite, short activity, but rather as a long-term process that embraces the individual's whole productive life and facilitates the accumulation of knowledge, as well as the development of labour competencies with the aim of increasing the opportunities for the professional and personal improvement and progress of workers.

3. How do labour competency and competitiveness relate?

3

How do labour competency and competitiveness relate?

The movement towards the adoption of the labour competency approach has been related to the changes that are currently taking place globally in different environments. Mertens,⁴² in particular, has associated labour competencies with the generation of competitive advantages, the productivity strategy and the management of human resources.

This author considers that the emergence of the competencies approach is undoubtedly related to the productive transformations that have taken place since the eighties. A greater exposure to global competency and the pressure to improve quality and reduce costs were strategies that spread quickly from Japan to the Western world.

Enterprises have quickly come to understand the need to prevail in the market by creating competitive advantages; to Mertens, the following question summarises the whole issue: how can enterprises differentiate in a market that tends to globalise and to facilitate the quick and massive spreading of better organisational practices and technological improvements?

The entrepreneurial strategies that aimed at improving competitiveness ended up producing differentiation elements from the organisational structure and from including elements that used to be only part of their environment. In this way cooperation networks were built between the productive function and other key agents such as suppliers, advisors, contractors, customers, workers, etc. Actual virtual structures were created and the important things were not the physical or financial assets but rather other intangible and valuable ones, such as knowledge, training, innovation capacity, market management, motivation systems, etc.

One of the key components of this newborn architecture is the human factor, i.e. the contribution made by people and sup-

⁴² Mertens, Leonard, *Competencia Laboral: sistemas, surgimiento y modelos*, Montevideo, Cinterfor/ILO, 1997. Available at www.cinterfor.org.uy/Publicaciones

porters of the organisation in favour of the enterprise's objectives. In that sense, it can be concluded that the emergence of the approach on labour competency is related to the strategy of competitiveness, given the enterprise's need to take the development of its human resources as the starting point to differentiate in the market.

Nowadays, the relationship between a competent workforce and the degree of competitiveness and productivity of a country are widely accepted. There are a number of diagnoses associated with the little availability of competencies and the degree of productivity of economy. Examples of this are the national diagnoses on education and training that supported the projects to transform education in Chile and Mexico.⁴³

For instance, an experience that illustrates the relationship between productivity and competencies development in Latin America may be quoted. We are referring to the System for the Measurement and Improvement of Productivity (SIMAPRO), whose main principle begins with accepting the fact that modifying workers' performance influences productivity indicators.⁴⁴ Performance is part of a broader concept, that of behaviour, and the intention is to work towards the identification of the factors that affect performance in order to correct them through actions that have been particularly designed and directed with that aim. A fundamental aspect is the definition of indicators of the organisation's productivity.

SIMAPRO's basic methodological principles are:

- it is limited to those dimensions of productivity that the personnel can control;
- it considers the measurement of the objectives that correspond to the functions fulfilled by the personnel;
- the interaction among different indicators may be appreciated, rather than only an isolated one;
- an aggregated indicator is created in order for it to measure the progress in personnel performance;
- indicators are dynamic, fluctuating and changing; new ones may appear or some may no longer be used;
- the model must be simple and comprehensible.

⁴³ Available at the World Bank Web page: www.worldbank.org

⁴⁴ All the information concerning SIMAPRO was included in: Mertens, Leonard, *Productivity in organisations*, Montevideo, Cinterfor/ILO, 2004: http://www.cinterfor.org.uy/public/english/region/ampro/cinterfor/publ/mert_pro/index.htm

4. What is the procedure followed to apply the labour competency approach?

When referring to the labour competency approach it is convenient to distinguish between the different stages of its application. Clearly, the concept and its theoretical basis underlie all its applications; it can be found in labour training as well as in human talent management. The stages that will be described are: **identification** of competencies, **standardisation** of competencies, competency-based **training** and **certification** of competencies.

Many of the questions included in this text will refer to each of these dimensions. Nevertheless, some conceptual specifications of each of them will be advanced.

Identification of competencies: It is the method or process followed to establish, from the basis of a labour activity, the competencies that are involved while performing such activity satisfactorily. Competencies are usually identified on the basis of the job's reality;⁴⁵ this implies that workers' participation during analysis workshops should be facilitated. Identification coverage can go from the job position to a broader and much more convenient concept: occupational area or job environment. There are different and varied methodologies to identify competencies. Among the most frequently used ones we may find: functional analysis, "develop a curriculum" method (**DACUM**), as well as its variant methods **SCID** and **AMOD** and the behaviourist methodologies that focus on the identification of competencies.

Standardisation of competencies: Once competencies have been identified, its description may be very useful to clear up the transactions between employers, workers and educational entities. Usually, when standardised systems are organised, a standardisation procedure is developed so that the competency—identified and described with a common procedure—becomes

What is the procedure followed to apply the labour competency approach?

⁴⁵ Some human resources management models employ catalogues of competencies. They are lists that contain the statement and definition of several competencies. In these cases the enterprise chooses the ones to give more priority in accordance with their objectives and characteristics.

a **standard**, i.e. a valid point of reference for educational institutions, workers and employers. This institutionally built and formalised procedure standardises competencies and turns them into an agreed standard level (at the enterprise, sector, country).

Competency-based training: Once the competency has been described and standardised, the design of training curricula for work should be much more efficient if they are oriented towards the standard. This means that when training is geared to generate competencies that clearly correspond to existing standards, it will be much more efficient and will have a stronger impact than training that is totally unaware of the needs of the entrepreneurial sector.

It is not only necessary that training programmes are oriented to generate competencies by taking standards as a basis, but also that educational strategies are much more flexible than the traditionally employed ones. In this way, **competency-based training** also faces the challenge of facilitating entrance and re-entrance, thus turning the ideal of continuing training into a reality. Likewise, it is necessary that a greater involvement of the participant in his training process is allowed so that he may decide on what he needs from training, the pace and the didactic materials he will use, together with the required contents.

Some of the key competencies, those which are more required in the view of human resources management, are not generated by knowledge passed on with teaching materials but rather through the ways and challenges that the learning process may foster. Paradoxically, the generation of attitudes oriented towards initiative, problem-solving, abstract thinking, interpreting and anticipation is very often promoted within educational contexts where the basic unit is the group, where everybody works at the same pace, has the same quantity and quality of means and plays a totally passive role.

Certification of competencies: It refers to the formal recognition of the proved competency (thus, assessed) of an individual in order for him to carry out a standardised labour activity.

The issue of a certificate implies that there has been a prior process of **competency assessment**. In a standardised system, the certificate is not a diploma that certifies prior studies. It is rather a proof of a verified competency, and it is obviously based on a well-defined standard. This offers much more transparency to standardised certification systems since it allows workers to know what is expected from them, employers to be aware of the competencies that are being required by their enterprise and training entities to be aided in their curriculum design process. The certificate is a guarantee of quality concerning what the worker is capable of doing and the competencies he has to do so.

5. What are the advantages for a worker with competency-based training?

5

What are the advantages for a worker with competency-based training?

The certification of labour competencies implies an advantage for workers since it recognises acquired competencies even during their experience and it does not limit the description of their labour skills to whatever their academic life was. The most developed models of the approach on competencies focus on providing certification with the same value as academic degrees, thus destroying the concept of first-class and second-class education.

On the other hand, in organisational terms, when workers know what is expected from them, they can be more efficient and motivated than those which are appointed to a position but are not made aware of the larger framework and the organisation's functions. The workers will take part in training plans that are much more directed to the improvement of their performance and the assessments will be more meaningful since they will contribute to the organisation's objectives.

Workers can definitely benefit from the advantages that a transparent market - with a sound certification system - offers. It is expected that a training process develops wide-range competencies that may be applied in a variety of labour situations. These competencies are often called key competencies. In this sense, it has been the case that while performing different labour activities there are competencies in common that are involved. These competencies are not exclusive of one job post but rather they can be owned and exercised in different job positions.

Competency-based training contributes to the fact that workers can take advantage of their skills in a wider range of employment options. This is how training and certification support employability. Additionally, competency-based training privileges the development of abilities associated with understanding, conceptualisation of what is being done and, therefore, it facilitates learning and re-adaptation. Its focus is more open and inclusive in terms of application at work.

It goes beyond the privileged attention to the development of physical skills since it has a conceptual basis and par-

ticularly because it focuses on results and the competencies behind them.

Compensation mechanisms may be much easily related at the level of competency and therefore be clear for the worker and the enterprise. The chances of labour mobility may be better judged when the competencies required by other departments in the enterprise are known. It is possible that some of the competencies associated with certain areas of performance be completely transferable to other areas. If such competencies are recognised and certified, promotion decisions can be sped up and it may motivate others who wish to carry out training actions in order to become eligible for those new positions.

6. What are the advantages for an enterprise with competency-based training?

6

What are the advantages for an enterprise with competency-based training?

Enterprises have begun to admit that their main source of differentiation and competitiveness is their people. Each day there appear more experiences of business organisations that direct their competitive efforts to strengthening their human assets. Generating spaces that promote innovation and life-long learning are objectives that are supported by training processes aimed at developing labour competencies.

The approach on competencies facilitates personnel selection greatly, since the selection may be founded on proved skills and no longer on diplomas. The new lines in terms of incorporating effective personnel are drawn upon the basis of competency-based profiles. The simplification of stuffed and often inoperative descriptions of job positions is highly facilitated by the use of concepts such as levels of performance and areas of competency, rather than the traditional and overused way of baptising positions and creating unnecessary differences among collaborators who interact at similar levels with high levels of interdependence.

Workers training is more easily identified and provided when mechanisms of competency assessment are employed on them, thus facilitating the identification of those competencies that are to be developed in each case, and therefore, the training actions that are required. Many entrepreneurial training programmes often end up with the easy and inefficient recipe formula which, on account of its repetitiveness, only manages to provide resources in the form of time and money, but they do not imply further progress in the view of workers.

Some enterprises, in the countries that have labour competency systems, have managed to relate their remuneration and incentive policies to competency-based models of human resources management. Such models associate competencies achievement with compensation mechanisms. This field, however, still remains to be explored and poses great challenges. One of the points of higher tension lies on the belief that a

certificate of competency should directly allow its bearer to receive an additional compensation. This utterly simplistic argument could persuade many enterprises not to implement a competency-based system.

Many enterprises are beginning to use and demand an interesting practice. It consists of measuring the variation that an action of training and competency development may produce in productivity. Apart from SIMAPRO⁴⁶ methodology – already mentioned above – there are other applications such as the ones developed by SENCE of Chile,⁴⁷ which consisted in measuring specific cases to verify the impact of training in productivity by employing econometric techniques.

⁴⁶ Mertens, Leonard, *Productivity...*, *op. cit.*, Montevideo, Cinterfor/ILO, 2004.

⁴⁷ Soto, E. et al., *Evaluación del impacto de la capacitación en la productividad*, Santiago de Chile, SOFOFA, SENCE, FUNDES, 2003.

B. Identification of competencies

7

What is occupational analysis?

7. What is occupational analysis?

The identification of the contents of occupations derived in attempts to achieve job classifications, with the purpose of establishing different remuneration levels. The first antecedents to the identification of labour contents resulted in the classification categories used in collective bargaining. In those years, early 20th century, the most descriptive differentiations would not go beyond referring to categories such as “worker”, “employer”, “foreman”, “supervisor”, “manager”, thus reflecting the degree of work organisation. Later on, descriptions appeared to be much linked to the logic of the described job positions; they seemed to stick to an exhaustive description but they also included a high hierarchical ingredient and they made a distinction between work at the plant, office work; “doing” work and “thinking” work.¹

With time, classifications began to be more complex; their growing importance in wages bargaining led to State’s intervention in order to define them. More and more, new production fields were subject to classification and the larger amount of definitions available led to the improvement of job analysis techniques. A number of methods were designed and set to consider the influence of factors that aimed at establishing the complexity and depth of a job position, so that educational characteristics, capacities, skills and even physical condition

¹ Jobert, Annette, “Las grillas de clasificación profesional, algunas referencias históricas”, in: *Formación Profesional: Calificaciones y clasificaciones profesionales*, Buenos Aires, Piette-Humanitas, 1990.

of candidates could be specified. Analysis techniques on job positions were also used to design scales of wages, by taking into account aspects such as responsibility, physical effort, mental effort, working environment, etc.

Changes in occupational contents and the ways of organising work, as well as the new demands of competent performance for workers, have exposed the obsolescence of the “scientific” methods of job analysis. The high specification of such analysis collides with the flexibility required for efficient performance. Job analysis activity fragmentation does not go along with the polyvalence and the further participation required. The traditional distinction between those who do and those who decide becomes blurred in the new ways of organisation in autonomous working teams and in the decrease of intermediate levels, which is characteristic of organisational levelling strategies.

Nowadays, several occupational analysis methodologies have been improved. They seek to identify occupational contents and facilitate the description of the competencies required by a certain occupation. From that description, support has been given to many activities related to human resources management (selection, promotion, remuneration, training, certification, assessment).

Some definitions of occupational analysis made by **Cinterfor/ILO**, **INEM** of Spain, the **Secretary of Labour and Social Security** of Mexico, **SENA** of Colombia, **SENAI** of Brazil and the American College Testing (**ACT**) are quoted below:

Cinterfor/ILO: Identification process of the activities and requirements of workers and the technical and environmental factors of the occupation through observation, interview and study. It comprises identifying the tasks involved in the occupation together with the skills, knowledge, aptitudes and responsibilities that are required from the worker for the correct performance of the occupation, which facilitates its differentiation among the rest.²

Pujol (1980) also defined it as follows: “the process of gathering, putting in order and appreciating information concerning occupations, both in terms of the characteristics of the work done and the requirements they impose on workers to achieve a satisfactory performance”.³

² Agudelo, Santiago, *Certificación ocupacional. Manual didáctico*, Montevideo, Cinterfor/ILO, 1993.

³ Pujol, Jaime, *Análisis Ocupacional. Manual de aplicación para instituciones de formación*, Montevideo, Cinterfor/ILO, 1980.

Occupational analysis was widely used during the eighties and it is still being applied today in some cases. Its basic formula lies in defining labour's initial motto: What does the worker do, what for and how? It also includes the statement of the necessary capacities and skills, as well as of the applied knowledge. A well-known aspect is the inclusion of physical characteristics such as coordination, skill and the different kinds of physical effort or movement involved in a certain task.

ILO's glossary of terms⁴ defines occupational analysis as the "action that consists in identifying, through observation and study, the activities and technical factors that make up an occupation. This process involves describing the tasks to be fulfilled as well as the knowledge and qualifications required to perform a certain occupation efficiently and successfully".

National Employment Institute of Spain (INEM): The process of occupational analysis focuses on reviewing different sources (classification of occupations, sectoral economic information, training needs analyses) and is developed along two main phases: the first one is establishing the occupational structure of the professional family and the second one is determining the vocational profiles of such occupations. It makes use of functional analysis as it regards it as an instrument which surpasses task analysis. Occupations are seen as a group of professional activities belonging to different job positions that share some characteristics. Their tasks are carried out with similar standards, techniques and means and they respond to the same level of qualification.

The vocational profile, which results from the second phase, is the description of the competencies and skills required for performing an occupation, as well as the conditions for professional development. It is formed by the statement of general competency, the description of competency units, the identification of vocational accomplishments, the description and grouping of tasks and the specification of execution criteria.⁵

The **Secretary of Labour and Social Security** of Mexico defines occupational analysis as a "methodology geared to attain, order and appreciate data concerning job positions, the characteristic technical and environmental factors in their development and the skills, knowledge, responsibilities and demands required from workers to improve their performance. Therefore, infor-

⁴ ILO, *Vocational training. Glossary of selected terms*, Geneva, 1993.

⁵ INEM, *Metodología para la ordenación de la formación profesional ocupacional*, Madrid, 1995.

mation is gathered at the workplace, related jobs are classified into occupations and then they are added to a catalogue”.⁶

SENA of Colombia defines the concept of “occupational study” as: “the systematic gathering, processing and appreciation of information concerning the entrepreneurial, economic, labour, technological and educational context of a certain occupational sector, the activities carried out by the enterprises of that sector to achieve their goals, the occupational structures and the labour competencies associated to each occupational area”.⁷

The process that this institution is advancing in the field of competency-based training facilitates the definition of the associated occupational study, not only in terms of identifying the characteristics of the occupational sector, but also regarding the identification of the productive functions and the creation of standards of labour competency and certifications required by the sector.

SENAI of Brazil places occupational analysis within the concept of “vocational profile” and defines it as the description of what is ideally necessary to know how to do in the professional field that corresponds to a certain qualification. It is the reference framework, the ideal of professional development, that when confronted with individuals’ actual performance indicates whether they are competent or not, whether they are qualified to perform their job or not. It is expressed in terms of vocational competencies.⁸ It should be pointed out that SENAI defines vocational qualification as a structured group of competencies that may be recognised in the labour market and that may be acquired with training, professional experience or a combination of both.

For the **American College Testing (ACT)**, it is the “systematic and analytical gathering of information concerning the actions carried out by employees to perform the tasks related to their job”.

This organisation developed a methodology of occupational analysis in 1993 to identify the competencies and skills shared by all occupations within a certain work setting.⁹ Once the common behaviours are obtained, some groups of workers are asked to classify such behaviours in terms of the importance

⁶ Secretary of Labour and Social Security, *Catálogo Nacional de Ocupaciones*, Mexico, 1986.

⁷ SENA, *Guía para la elaboración de estudios ocupacionales*, Dirección de empleo, Bogotá, 1998.

⁸ SENAI, *Metodología de elaboración de perfiles profesionales*, Brasilia, 2002.

⁹ ACT, *Fundamentos básicos para el desarrollo de las competencias de trabajo*, Iowa City, 1998.

they have for their occupation and the frequency with which they practise them. Once classified and considered, behaviours give an idea of the type of competencies that need to be strengthened in workers in order for them to show a mainstream improvement in their employability. In this way, educational and training programmes may focus on the development of transferable competencies and achieve stronger effects on worker employability.

8

What is functional analysis?

8. What is functional analysis?

It is a technique used to identify the labour competencies inherent in a productive function. Such function may be defined at the level of an occupational sector, an enterprise, a group of enterprises or a whole sector of production or services. Functional analysis may be developed with different initial levels: an occupational sector (hotel); mainstream occupations at various sectors (occupational safety and health); or an occupation (PC repairman). It is thus evident the flexibility of functional analysis. Although it was designed as a wide-scale analysis tool, it may also be useful to analyse occupations in certain subsectors or even at specific organisations.¹⁰

Functional analysis is not an exact method whatsoever. It is a working approach to the required competencies by means of a deductive strategy. It begins by establishing the main purpose of the productive function or service under study and then questions are asked to find out what functions need to be performed in order for the previous function to be achieved.

Ideally, this is carried out on a group of workers who are familiar with the function object of the analysis. Its worth as a tool comes directly from its representative quality. Certain rules are followed during its preparation in order to keep uniform criteria. The main purpose, key purpose or key function of the enterprise is usually described by following this structure:

¹⁰ B. Mansfield; L. Mitchell, *Towards a Competent Workforce*, Hampshire, Gower, 1996.



Some definitions of functional analysis

SENA defines it as “a method of questioning and focus that facilitates the identification of the Key Purpose of the sub area of performance, as a starting point to stating and correlating the functions that people should develop in order to fulfil such purpose, until their individual contributions can be specified”.¹¹

CONOCER: To detect the elements of competency that are part of a complex productive activity, like the ones usually evidenced in productive organisations, *Analysis of Functions* or *Functional Analysis* may be employed. It consists of a successive disaggregation of the productive functions until the functions performed by one person are found. These are the elements of competency.

The Analysis of Functions has the aim of identifying those functions which are necessary to fulfil the main purpose, that is, recognising –because of their relevance– the added value of such functions. The results of such analysis are expressed in a **functional map** or tree of functions.

L. Mertens:¹² Functional analysis has been taken by the new theory on social systems as their technical methodological basis. In that theory, functional analysis does not refer to the “system” itself, in the sense of a mass or a state that needs to be conserved or to an effect that needs to be produced. Rather, it is used to analyse and understand the relationship between the system and its setting, that is, the difference between them.

From this perspective, the objectives and functions of the enterprise should not be formulated from its organisation as a closed system, but rather in terms of its relationship with its setting. As a consequence, each worker’s function in the organisation should be understood not only with regards to the enterprise’s environment, since such environment itself also creates subsystems within the enterprise’s system, where each function is the setting of the other.

¹¹ SENA, Dirección de Empleo, *Metodología para la elaboración de normas de competencia laboral*, Bogotá, 2003.

¹² Mertens, Leonard, *Competencia Laboral: sistemas, surgimiento y modelos*, Montevideo, Cinterfor/ILO, 1996.

The starting point of functional analysis is what exists as contingent, as a probability. Then it relates that to points of view of the problem, which in this case is a certain result expected by the enterprise. It tries to make the problem understandable and intelligible, stating that it can be solved some way or another. The relationship between a problem and the desired result and its solution cannot be understood in itself; it also serves as a guide to find out about other possibilities, i.e. functional equivalents.

The functional method is a comparative method. Regarding competencies, it analyses the relationships that there are at enterprises between results and skills, knowledge and aptitudes of workers, comparing ones to the others.

United Kingdom: The development of Vocational Qualifications in the United Kingdom¹³ used as a basis a structure of performance standards of national scope. The standards described the competencies required in a certain area and they are created by taking occupational functions analysis as the starting point. This approach implies the identification of the main objective (also called key purpose) of the area under study.¹⁴ Then, it goes on with the definition of the functions that ought to be carried out in order to fulfil that key purpose. In essence, it is a disaggregation process that goes from the general to the particular. Once the key purpose has been identified, the disaggregation is done by answering this question: what should be done for this to be fulfilled?

This procedure continues until reaching a level where the function to be carried out, which answers the question, can be effectively performed by a person. It is there where the labour competency of a worker appears. Generally, this occurs between the fourth and fifth disaggregation level in the functional tree or map.

This analysis focuses on what the worker achieves, that is, the results, but never in the process followed to obtain them. This is its main difference with task analysis and job analysis.¹⁵

¹³ National Vocational Qualifications applied in England, Scotland, Wales and Northern Ireland.

¹⁴ The area of analysis may be, depending on the coverage, at the sector level, at the enterprise level or at the occupational level.

¹⁵ Handley, David. "El desarrollo del sistema de calificación profesional nacional en el Reino Unido". In: *Competencia laboral y educación basada en normas de competencia*, Mexico, Limusa editores, 1996.

What is the procedure followed to conduct functional analysis?

9. What is the procedure followed to conduct functional analysis?

CONOCER of Mexico¹⁶ states that the basis of functional analysis is the identification, by means of breakdown or disaggregation, and the logical ordering of the productive functions that are carried out at an enterprise or by a representative group of them, according to the level at which the analysis is taking place. Similar references may be found in some texts that describe the English system.¹⁷

For **INTECAP** of Guatemala,¹⁸ the stages of functional analysis are:

- forming the Standardisation Committee;
- training the Committee;
- applying basic principles and procedures of disaggregation to functional analysis;
- verifying the functional map;
- validating the functional map;

Among the most important rules to draw up a functional analysis there are the following ones:¹⁹

Functional analysis is applied from the general to the particular. It starts by defining the key purpose of the organisation and it ends up when a level is reached where the description covers simple productive functions –elements of competency– that may be developed by a worker.

Functional analysis must be capable of identifying defined functions (discrete) by separating them from the specific labour context. The idea is to include functions whose beginning and end is completely identifiable. It is not about describing the

¹⁶ CONOCER, *Análisis ocupacional y funcional del trabajo*, Work paper for IBERFOP, Mexico, February, 1998.

¹⁷ As: Fletcher, Shirley, en “Standards and Competency...”, included in: *Competencia Laboral. Antología de Lecturas*, Mexico, CONOCER, 1997.

¹⁸ INTECAP, *Guía para elaborar el análisis funcional*, Guatemala, 2001.

¹⁹ Manuals including detailed information may be consulted at: [www.cinterfor.org/competencia_laboral/banco de herramientas](http://www.cinterfor.org/competencia_laboral/banco_de_herramientas)

tasks belonging to a certain job position but rather the functions developed in the context of the occupational setting where they take place. This facilitates the transferability of such functions to other labour contexts and avoids that they remain linked to only one specific job.

Usually, subfunctions appearing at the fourth level of disaggregation already include the labour achievements that a worker is capable of having. When reaching this point - which may also occur at the fifth level of disaggregation - we are already talking about “accomplishments” or “elements of competency”.²⁰

In this way the subfunctions that may have been identified at this level could already be considered elements of competency and the immediately previous level shall be the unit of competency.

Such specification may be better evidenced in the example of functional map that is included in the following page.

A clear example of functions transferability to different contexts can be obtained in the following function: “transport of materials, persons or values”, this function may describe the job of the driver of a truck, bus, armoured vehicle or taxi.

In the same way, the function of “serving clients and clearing up their doubts” describes the job that may be done at a hotel reception, a department store or at the desk of a business office. Obviously, the function must be specified in terms of its field of application; but the competencies involved in this case are perfectly transferable to other contexts.

The process of disaggregation (breakdown) of functions is conducted by following the cause-effect logic. While conducting the breakdown, it should be verified what is necessary to be achieved in order to obtain the result described in the function that is being disaggregated. In this way, the disaggregation of a function at the following level represents what needs to be achieved in order for that function to be carried out. The key question of the breakdown is: “what needs to be done to achieve this?”

The functional map is not a representation of work processes. It does not seek to describe the process graphically, but rather the necessary productive functions to fulfil the key purpose. While making the map, it should be avoided to include descriptions of operations or tasks. It is the case of the function: “working under safety conditions”, which should not be described in terms of “wearing a helmet” or any other safety element.

²⁰ Many adaptations of functional análisis use terms such as “vocational accomplishments”, “labour achievements”, “results”.

10

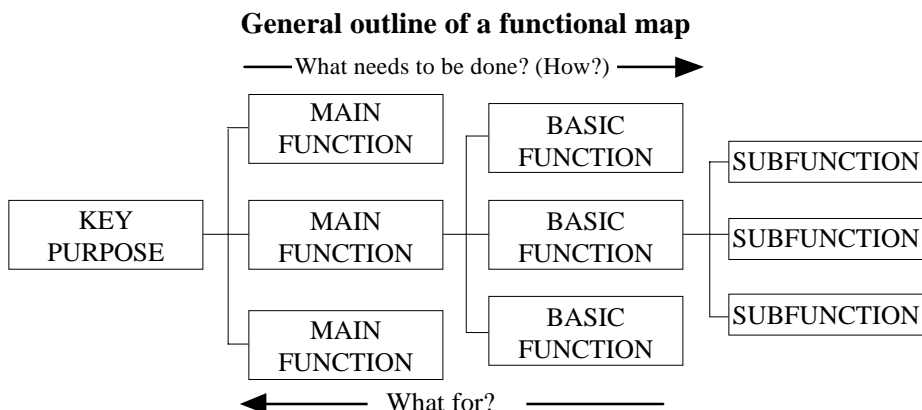
What is a functional map?

The relationship between functions and the key purpose should be particularly considered throughout the drawing up of the functional map. Therefore, it is advisable to check periodically that this principle of consistency is kept in the analysis. This revision should give account of the functions that may appear repeated at the different branches of the tree. The logic followed for drawing up the functional map does not accept such repetitions. If that was the case, it should be revised and re-made.

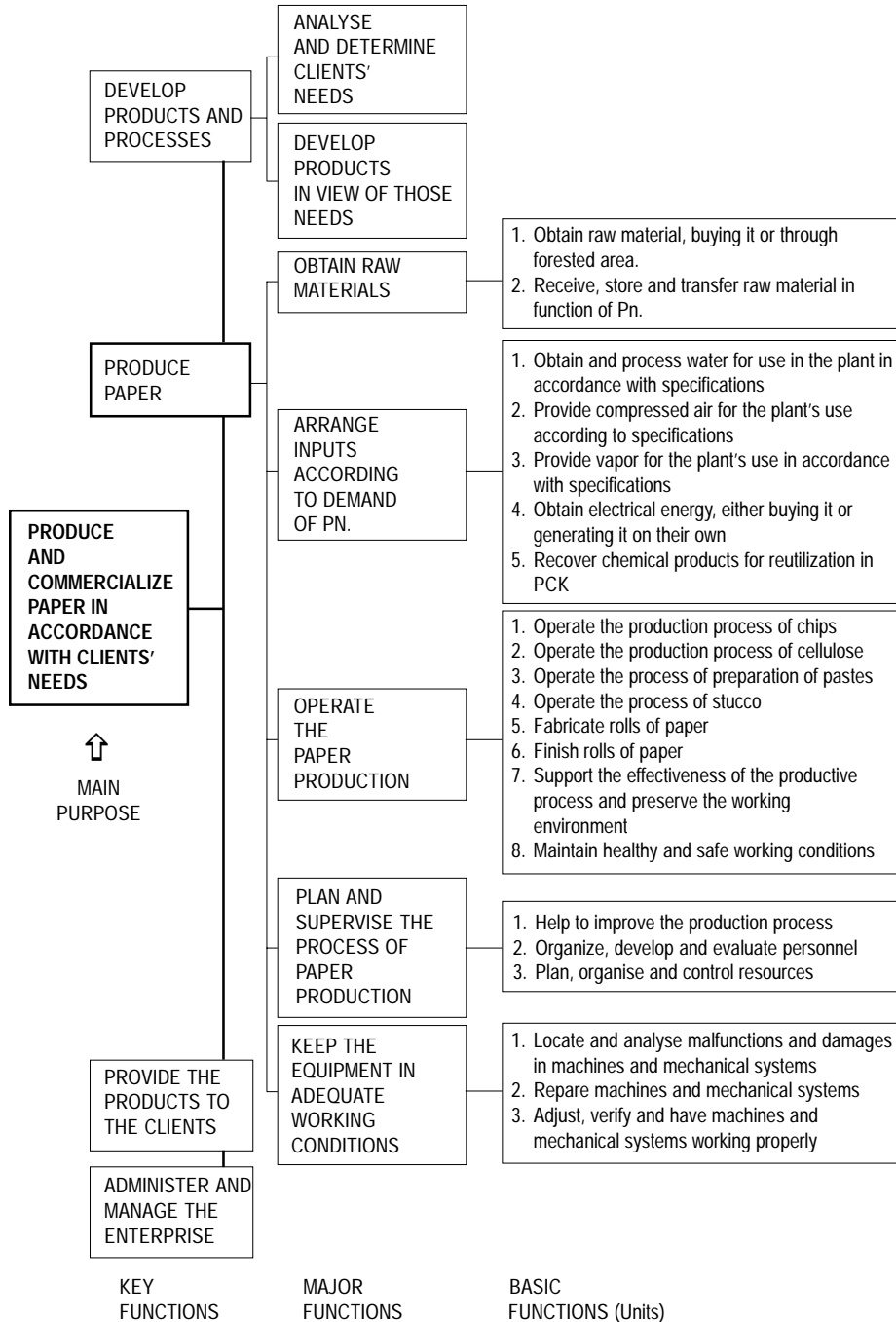
10. What is a functional map?

The functional map or tree is the graphic representation of the results of the functional analysis. Its tree-like design (horizontally displayed) reflects the methodology followed for its drawing-up. It shows how the key purpose successively disaggregates—once it has been defined—into the constituent functions.

In fact, the tree branches are “causes” graphically linked to the left (or downwards, depending on how it is displayed) to their corresponding “consequences”. If it is read from bottom to top (or from left to right), we find the answers to “**how**” a main function is carried out through performing the basic functions that compose it. Conversely, from right to left, we find the answer to “**what for**” of each function, which is contained in the function of the immediately following level. What follows is a graphic representation and an example of a functional map.



Functional chart of paper manufacturing





How does functional analysis contribute to competency-based training?

11. How does functional analysis contribute to competency-based training?

Functional analysis, just like any other methodology which analyses occupations, becomes the basis for the creation of not only competency standards, but also training programmes.

The method of functional analysis is the first stone in the creation of labour competency standards. As such, it is in the root of the description of the occupational areas that are the object of standardisation. The integration of competency standards with their different components –units of competency, elements, evidence of performance, performance criteria, field of application, evidence of knowledge and assessment guidelines– is the basis for designing competency-based training curricula.

A crucial aspect of competency-based training is the necessary correspondence between the competencies required by different occupations and the contents of training programmes. For this reason, the process of transferring identified competencies to training curricula is essential to ensure the relevance of training programmes.

Some experiences of competency-based curriculum design have managed to describe such process from the point of view of identified competencies. Particularly, reference could be made to the methodology employed by CONALEP of Mexico, which is called: “Method for the design of competency-based training courses”.²¹ In the same way, methodologies used by SENAI of Brazil, SENA of Colombia and INTECAP of Guatemala, among others, could be quoted.²²

Overall, the relationship between functional analysis and competency-based training is founded in the grounds offered by such methodology for the design of training programmes.

²¹ A quite extensive description may be obtained at: CONOCER, *Análisis ocupacional y funcional del trabajo*, Madrid, IBERFOP-OEI, 1998.

²² Some may be consulted at www.cinterfor.org.uy section: competencia laboral/banco de herramientas

Formerly, this methodology was frequently criticised because of its strong orientation towards the elaboration of competency standards, rather than training programmes. However, with time, many successful methodological adaptations have taken place. These adaptations have designed training programmes by taking functional analysis as the starting point.

12. What is the main function or key purpose?

The main function or key purpose is the starting point from which the functional map is developed. It is the point from where productive functions successively derive, with the logic of “what needs to be done to achieve this?”

The key purpose describes the reason for being of the productive activity, enterprise or sector, depending on the level at which the analysis is being conducted. Its description should be as succinct as possible. The typical ornaments of statements of mission used in papers related to enterprise policies definitions should definitely be avoided.

Some examples of key purpose in functional analysis

“Produce and commercialise paper according to customer needs.”

“Look for, process and sell red and white meat and meat products to satisfy customer needs.”

“Carry out works that satisfy customer needs complying with the laws and regulations in force.”

“Provide banking services that satisfy the financial –and related– needs of customers on a regular basis.”

“Create, supply and broadcast electronic radio, cinema and TV productions for the general public and specific audience.”

“Produce and process wool for the national and world market.”

“Operate services of competency-based technical education and training.”

13

What is a unit of competency?

Usually, the key purpose is written with the verb that describes the action performed on a certain object (the product obtained) and it ends up by stating a condition related to the function described.

The key purpose describes what needs to be achieved. It focuses on showing the results of the productive activity under analysis.

13. What is a unit of competency?

The process of functional analysis is carried out, as it was stated above, by disaggregating the identified functions taking the main purpose as the starting point. With a logic of problem-solution, each of the disaggregated functions becomes a “solution” to solve the “problem” posed by the previous function.

The unit of competency is a group of productive functions identified in the functional analysis at the bottom level, where such function can already be carried out by one person. It is at this bottom level when they are known as “elements of competency” in the United Kingdom’s system or “vocational accomplishments” in the Spanish system.

The unit of competency is formed by a group of elements of competency; it has a clear meaning in the work process and, therefore, it has value for the work itself. The unit not only refers to the functions that are directly related to the job’s objective, it also includes any other requirement connected with health and safety, quality and relationships at work.

14. What is a labour qualification?

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What is a labour qualification?

Units of competency constitute modules with an evident meaning and value at work. When different units are grouped with a clear occupational set up of the sector under analysis and with a well-defined level of competency, labour qualifications begin to take shape.

Qualifications are not names for job positions. They are groups of competencies that may be taken as reference of job performance at the organisation and also for the design of training programmes. Each job position will have its units of competency well specified and certified for competent performance to take place. A labour qualification can have units that may be applicable to more than one job; thus, favouring labour mobility.

Labour qualifications are a group of units of competency integrated in the environment of a productive function. According to CONOCER,²³ there are, in general terms, a certain similarity between the concept of qualification and profession, since the former has a wide range of performance possibilities at different job positions.

A labour qualification, at a certain specified level of performance, is composed of several units of competency. Units of competency are integrated by elements of competency and these are in turn specified in terms of performance, application range, evidence of knowledge and evidence of performance.

The concept of qualification, used in the Mexican system, among others, may seem similar to the certification system of the United Kingdom and it has been defined by SENA in the following manner: a Labour Certification is the group of Labour Competency Standards that describe the performance required by a certain Occupational Field or Occupation and that workers exercise in several job positions of the productive process using allied and supplementary technologies, sharing a similar working environment, applying common knowledge and prin-

²³ CONOCER, *Análisis ocupacional y funcional del trabajo*, op. cit.

ciples and delivering similar products in the value chain of the productive system.²⁴

According to SENA, all certifications gather competencies belonging to allied occupational areas. They represent relevant performances within an occupational area and, of course, they are not the name of a job position. It can also be the case that several certifications are identified within the same area.²⁵

The following are examples of certifications:

“Personnel training and development”

“Printed material production”

“Manufacturing of metal-mechanical products”

“Operation of drinkable water industry plants”

Notice the close link between the names of certifications and the typical processes of functional analysis and how they draw away from the traditional names of job positions.

In this sense, **SENAI** of Brazil makes use of the concept of vocational qualification,²⁶ which is defined as a structured group of competencies that can be recognised in the labour market. They may be acquired through training, experience or a combination of both.

Vocational qualifications are taken from the productive system and the labour market; they represent, therefore, a consistent answer to the needs of the corresponding sector. They should be named in a clear and simple way, with the same sort of language employed in the labour world. They are defined in terms of competencies associated with a labour field that is broad enough to generate adequate job opportunities. Its content may favour a training process and they may be subject to certification.

²⁴ SENA, Dirección de Empleo, *Metodología para la elaboración de normas de competencia laboral*, 2003.

²⁵ SENA, Dirección de empleo, *Guía para la elaboración de estudios ocupacionales*, 1998.

²⁶ SENAI, *Metodologia de Elaboração de Perfis Profissionais*, Brasília, 2002.

15. What is an element of competency?

15

What is an element of competency?

The disaggregation of functions that is carried out during the long process of functional analysis does not generally go beyond four or five levels. While analysing the last level, it will be learned that it comprises competencies, i.e. results that at that level can already be reached by persons who are capable of so (that is, competent individuals). When these different functions can be executed by individuals and describe the actions that may be achieved and summarised, they are called *elements of competency*.

The element of competency includes the description of an action that should be achieved by a person in their occupational environment. Therefore, it refers to an action, a behaviour or a result that a worker needs to demonstrate and, thus, it is a function that is carried out by one individual.

Elements of competency are written in the form of a sentence, following the rule of beginning with a **verb** in the infinitive, preferably; then it describes the **object** on which the action is performed and, finally, though it is not compulsory in every case, it includes the **condition** of the action regarding the object.

Supplementary definitions to elements of competency

Field of application. It is the description of the circumstances, the environment, the materials and the machines and instruments that are involved in the performance described in the element of competency.

Evidence of performance. They are descriptions of variables or conditions whose status allows to infer that the performance has effectively taken place. Direct evidence has to do with the technique employed in the performance of a competency and it is verified through observation. *Product evidence* is real proofs, observable and tangible, of the consequences of performance.

Evidence of knowledge. It includes the necessary knowledge and comprehension to achieve competent performance. It may be reflected in theoretical knowledge and principles with a scientific basis that workers are supposed to master, as well as in their cognitive skills regarding the element of competency to which they belong.

**What is
a performance
criterion?**

The element of competency should be completed with performance criteria, evidence of performance, evidence of knowledge and range of application.

An element of competency is written in such a way that the following phrase should come first: *“the worker will be capable of...”*

Examples of elements of competency

- Determine techniques, materials and resources that satisfy the learning that is to be achieved.
- Operate control systems to keep the process flow and maintain the product according to specifications.
- Keeping order, safety and health as established by the regulations in force.

Elements of competency are the basis for standardisation. Several elements may be grouped together when they imply a specific action of the productive process. These groups of elements are called units of competency.

16. What is a performance criterion?

Once elements of competency have been defined, they need to be specified in terms of: the quality with which they have to be achieved, the evidence that proves they have been obtained, the field of application and the knowledge required. These are the components of the competency standard.

When defining performance criteria, reference is being made to the expected result of the element of competency and to an assessment statement of the quality that such result is supposed to show. It could be said that performance criteria are a description of the quality requirements of the result obtained in labour performance. They allow to establish whether the worker can reach the result described by the element of competency or not.

Performance criteria should, as far as possible, refer to the essential aspects of competency. They should, therefore, express the characteristics of the results, which are closely related to the achievement described in the element of competency. They constitute the basis to assess whether a worker is, or is not yet, competent; in this way, they support the design of assessment material. They allow to specify what has been done and its quality.

They are written by making reference to a result and including an assessment statement concerning such result.

Examples of performance criteria

- Materials storage is done according to safety requirements in the places assigned.
- Safety elements are used according to specifications.
- Production equipment is operated and controlled according to specifications.

17. What is the DACUM method?

DACUM (Developing a Curriculum) is an occupational analysis method aimed at the achievement of results that may be immediately applied to the development of training curricula. It has been specially promoted and developed by the Centre on Education and Training for Employment of the Ohio State University of the United States.²⁷

Below, there is a review of the experiences carried out by **INATEC** of Nicaragua and the **Ohio University** with DACUM.

The **National Technological Institute (INATEC)**²⁸ of Nicaragua, with the advisory services of the International

²⁷ Contact person: Robert Norton, e-mail: norton.1@osu.edu

²⁸ INATEC-ILO, *Metodología para la transformación curricular según los sistemas DACUM y SCID*, Centro de Formación Nicaragüense-Holandés “Simón Bolívar”, Nicaragua, May 1997.

Labour Organisation (ILO), has recently worked on the design of its training programmes by taking DACUM as the starting point.

It is defined as a quick method to carry out occupational analysis at a low cost. It uses the technique of team work, with teams formed by workers who have experience in the occupation that is the object of the analysis. To make a workshop that uses DACUM groups of five to twelve people are formed. They are guided by a facilitator and they are supposed to describe in a clear and precise way the knowledge and the “know how” involved in the job position.

The result is usually expressed in the so-called “DACUM letter” or “DACUM map” where the job position is described in terms of the competencies and subcompetencies it requires.

At this point there may be a noticeable difference between the concept of competency that is used to carry out the functional analysis and the one used by DACUM. The latter considers that competency is the description of big tasks and, at the same time, it is the sum of a number of small tasks called subcompetencies. The total amount of competencies makes up the description of the tasks involved in a certain job position. Conversely, functional analysis does not describe tasks; it identifies the results that are necessary to fulfil the key purpose.

The examples available of DACUM letters usually show competencies that are described as operations or tasks. The rules to describe units and elements of competency used by functional analysis are not explicitly applied by DACUM.

Typical example of the statements of a DACUM letter

Competency A:	prepare meals
Subcompetency A1:	buy food
Subcompetency A2:	wash food
Subcompetency A3:	cut food
Subcompetency A4:	cook food, etc.

The DACUM letter also includes the necessary knowledge, behaviours, conducts, equipment, tools, materials and the future development of a job position, as optional.

For **Ohio University**, DACUM is a widely used method that is unique, innovative and effective to carry out occupational analysis and work analy-

sis.²⁹ It is developed by a working team that, generally in a two-day period, produces a detailed research chart with the tasks and duties developed by workers in a certain position.

Basic principles of DACUM³⁰

- **Expert workers³¹ can describe their job better than anyone else.** Those workers whose occupation is the object of the analysis and who have a good performance in that position are real experts on that type of job. Although first-rate supervisors and managers may know a lot about the work developed, they usually lack the necessary level of expertise to conduct a good analysis of such job.
- **An effective way of defining an occupation is describing the tasks developed by expert workers.** A worker may carry out several tasks that are highly appreciated by their colleagues and internal clients. To do this, attitudes and knowledge alone are not enough; they do things the right way when they develop activities which, if known by the enterprise, may facilitate better training for everyone else.
- **To develop all tasks in an appropriate way, knowledge, behaviour and skills need to be applied, together with the use of tools and equipment.** DACUM gives importance to the detection of factors that explain a successful performance. Therefore, it seeks to establish not only tasks but also a list of such factors. It further specifies the tools with which the worker interacts in order to facilitate practical training.

DACUM has been used to analyse occupations at the professional, executive, technical and operational levels. Its use as a methodology to analyse industrial processes and systems has made it popular in the United States, Canada and some Latin American countries (Chile, Nicaragua, Uruguay and Venezuela).

Its use is particularly promoted in order to guide the design of training programmes and to shorten the gap between training programmes' content and what actually takes place at work. DACUM is also useful to training institutions that wish to implement competency-based programmes which require a careful identification of tasks and that are directly related to the competencies that are to be obtained. What follows is a typical example of a DACUM research chart.

²⁹ Ohio State University, *Introduction to DACUM*, 1995.

³⁰ Op. cit.

³¹ Some versions of DACUM methodology explicitly ask for the best workers.

EXAMPLE OF A DACUM RESEARCH CHART

DACUM RESEARCH CHART FOR REGISTERED NURSE								
DUTIES	TASKS							
A. Assess patients	A1. Review assessments of others	A2. Establish patient trust & support	A3. Evaluate risk factors	A4. Assess vital signs	A5. Perform physical assessment	A6. Obtain medical history from patient	A7. Assess mental and physical condition of patient	A8. Complete admission forms
B. Plan patient care	B1. Identify patient's problems nurse's diagnosis	B2. Develop short- term care/long-term care	B3. Formulate discharge plan	B4. Establish nurse's intervention	B5. Document care plan form	B6. Develop teaching plan for patient	B7. Interact with patient's family	B8. Coordinate patient schedules
C. Provide (ADL's) activity daily living	C1. Determine ADL status	C2. Assist patient with personal hygiene (e.g., bathing, grooming, oral care)	C3. Assist with patient ambulation	C4. Assist with patient feeding	C5. Assist with patient dressing	C6. Assist patient with toileting		
D. Evaluate patient care	D1. Assess patient response to medication	D2. Assess patient response to treatment	D3. Assess patient response to therapy	D4. Evaluate wound care	D5. Evaluate skin care	D6. Evaluate patient understanding plan of care	D7. Document findings of evaluation D7. Revise plan of care	

Source: DACUM Research Chart for Registered Nurse, Ohio State University, 1995. This is a partial representation of the original.

DACUM RESEARCH CHART FOR REGISTERED NURSE (continued)

General knowledge and skills

Communication - verb; listening; written; non-verbal (send & receive), speaking	Coordination skills Supervisory skills Problem solving skills	Identify resources Diagnostic skills Computer skills
Medication	Critical thinking skills	Equipment operational skills\
Assessment skills (nutritional, neurological, mental/ emotional, physical)	- data collection & interpretation - sharing info with proper people	Gross & fine motor skills Pain management skills
Organizational skills	Interpersonal skills	CPR
Time management skills	Culpable of monitoring a patient's physical & emotiona needs	Heimlich Conflict resolution

Worker behaviors

Patience, flexibility, compassionate nature, conscientious, team player, honest, personal responsibility, self-starter, assertiveness, professional attitude, sensitive, respectful of bodie space, respectful of mental boundaries.

Tools, equipment, supplies and materials

Oxygen equipment	Irrigation sets	CPM machine	Dressings
Restraints	Staple/suture removal kits	Ted hose	Briefs
Pulse oximetry	Posey belts	Bed pan	Chux
Nebulizers	Iv kits	Urinal	Syringes
Blood pressure equipment	TENS unit	Walkers	Inhaler
Stethoscope	Culture tubes	Canes	Spirometer
IV pump	Specimen containers	Wheel Chairs	C-PAP
Enteral feeding pump	K-pads	Carts	IPPB
Suction machine	IVACS	NG tubes	Glucometer
Motorized beds	Foley kits	Computer	Heme test
Specialized beds	Otoscope	Medications	

Future trends and concerns

Managed care	Deemphasis of medical specialties
Home health care	Capitation
Hospice care	Cost effective care
Nursing versatility	Federal funding cuts, legislation, medicare
Upgradin skills and education	Advances in technology
Computer skills	Increased importance of patient teaching
Increasing control of insurance companies over patient care	Increased liability

Date of report: December 7-8, 1995.

Panel members: Betty Brownlow, C.M.H.I. at Fort Logan, Denver. CO. Sara E. Hudspeth, St. Joseph's Hospital, Denver.

Facilitators: Robert Norton, Team Leader, CETE. Glenn Koons, Austin, TX. Jeannie K. Smith, Austin, TX.

Source: DACUM Research Chart for Registered Nurse...Idem.

18. What is the AMOD method?

AMOD (“A model”), a variant of DACUM, is characterised by creating a strong relationship between the competencies and subcompetencies defined in the DACUM map, the learning process and the assessment of learning.

To carry out AMOD, once the DACUM map has been done, the experts committee sets about the identification of big areas of competency. Areas of competency are organised in sequence in the most appropriate way so that their order may facilitate that workers master them during training. According to experts, each of the areas of competency is assigned the subcompetencies and skills, going from the more to the less complex.

Up to the research chart on competencies, the AMOD method is identical to DACUM. But then onwards, subcompetencies are ordered according to their degree of complexity within each of the competencies identified. The idea is to organise the subcompetencies that build up each competency by beginning with the simpler ones until the most complex are considered. This must be done with each of the main competencies that make up the occupation under analysis.

Once this has been organised, all functions and their corresponding tasks will be ordered according to a complexity criterion. In this way, the occupation can be viewed with the different degrees of complexity of its functions and tasks.

Once they have been ordered according to complexity, the ordering criterion changes to show the manner in which the learning curriculum of the occupation should be structured. At this point, AMOD research chart serves as a basis for curriculum design, and therefore, the process to order subcompetencies takes the following questions as a basis:

- How does training begin?
- How does it develop?
- How does training end?³²

³² Mertens, Leonard, Metodología AMOD para la construcción de un currículo de capacitación. Workshop seminar. Ministry of Labour and Social Security. Buenos Aires, September, 1998.

Based on this logic, groups of subcompetencies that are taken from different functions and ordered according to the criterion of facilitating learning of the occupation under analysis are structured. This objective of facilitating learning determines the organisation of subcompetencies according to their level of complexity. To that effect, the following criteria can be applied: organising them from the practical to the theoretical or from the simplest to the most complex. In some cases, experts may chose to combine the two criteria so that they can come closer to the real conditions of the learning process involved in the occupation under analysis.³³

The result is the AMOD research chart, which has areas of competency with subcompetencies ordered according to the learning criterion chosen. Thus, the AMOD research chart is introduced with its training modules; in this way, each learning module includes subcompetencies belonging to a similar level of complexity which becomes more complicated as it progresses from one module to the next. The design of this research chart is totally concerned with training, but, as it may be noticed, it always corresponds to the competencies identified. When the AMOD research chart is available, a process of revision and validation should be carried out so that it remains representative.

Summary of AMOD process

- Go through the DACUM process until obtaining a validated research chart.
- Order the tasks of each function; from the simplest to the most difficult one.
- Structure “modules” by combining tasks of even different functions, with the criterion of facilitating learning. This criterion consists in ordering modules according to their level of complexity; that is: how should learning begin? How does it develop? How does it end? To that effect, the criterion of going from the easiest to the most difficult, or from the particular to the general, or another criterion the group’s experience shows, may be adopted.

Just like DACUM, AMOD is known as a dynamic and quick method to establish competencies and training programmes.³⁴

³³ Irigoin, Vargas. Op.cit.

³⁴ CONOCER, *Análisis ocupacional y funcional del trabajo*, op. cit.

19. What is the SCID method?

SCID (Systematic Curriculum and Instructional Development) is a thorough task analysis method developed with the aim of facilitating the identification and performance of training actions that are highly relevant to workers' needs. It may be done as a deeper complement to DACUM or to other productive processes based on other methodologies (experts' opinions or interviews with workers, for instance) that may go about ordering the tasks that make up a job position.

SCID enables the design of educational guides that focus on student self-learning. To develop these guides, it is necessary to establish criteria and evidence of performance that may later on facilitate assessment. Tasks are at least detailed in: steps, execution standards, equipment, tools and necessary material, safety standards to be observed, decisions that the worker may have to make, information the worker uses to decide and description of the mistakes made while deciding in an inappropriate manner. The following page includes an example of disaggregation from a DACUM research chart.

The content of the learning packages, oriented to self-learning and customised learning, begins with a description of how to use them. Then the instruction pages describe the crucial aspects that the worker needs to master but not the way in which the job should be done. It talks about the decisions that the worker should make. It includes a self-assessment sheet and it ends up with a detail on the way in which the supervisor should carry out the execution test.³⁵

³⁵ Further information available at: CONOCER, *Análisis ocupacional y funcional del trabajo*, Madrid, IBERFOP-OEI, 1998. and http://www.cinterfor.org.uy/competencia_laboral/herramientas

EXAMPLE OF DISAGGREGATION OF EACH OF THE STEPTS INTO TASKS (SCID)

OCCUPATION: registered nurse. **TASK:** C2. Assist patient with personal hygiene (preparation, bath, oral hygiene)

STEPS	EXECUTION CRITERION	EQUIPMENT TOOLS MATERIALS	KNOWLEDGE	SAFETY	DECISIONS	INDICATIONS
Operations executed to carry out task	Indications to follow each step properly	Thorough description of each step	Basics, of procedures and applications	Measures of self safety and safety of others	What decisions should be made to do the work	Key data for making decisions
B2.1 Prepare necessary materials	Gather all necessary elements according to patient status	Towels, swabs, patient care materials	Personal hygiene products, materials and utensils	Disinfections Use of safety materials	Select materials for use Hygiene care	Be based on knowledge of patient status
B2.2 Move patient into required position	Establish degree of dependence of patient	Use of required ambulation equipment	Basic anatomy Use of support equipment	Use of safety materials	Chose the best position for patient safety	Listening and communication skills
B2.3 Do required cleansing or hygiene	Use necessary materials	Care and cleansing materials	Principles of skin anatomy and physiology Body hygiene principles Bath and cleansing procedures	Disinfections Use of safety materials	Define safe cleansing procedures and materials to be employed	Select techniques according to patient status
B2.4 Assist patient with elimination	Use of necessary materials	Containers for solid and liquid specimens	Collect specimens	Use of safety materials		
B2.5 Eliminate waste and specimens according to procedures	Use of appropriate means at care centre	Contaminated supplies and bio- hazardous waste deposit	Standards of sanitary hygiene and safety	Use of safety materials		

Source: Irigoin, M.; Vargas, F., *Competencia laboral. Manual de conceptos métodos y aplicaciones en el sector salud*, Montevideo, PAHO-Cinterfor/ILO, 2002.
Only written as an example.

C. Standardisation of competencies and quality standards

20

**What are
labour
competency
standards (LCS)?**

20. What are labour competency standards (LCS)?

They are the standardised description of labour competencies that have been previously identified. It is important to consider LCS with their regular meaning of standards of comparison, rather than as a compulsory legal instrument to comply with. LCS are formed by the knowledge, abilities, skills, comprehension and attitudes –identified in the stage of functional analysis– required for a competent performance of a certain productive function. In this sense, they are an instrument that allows to identify the labour competency required by a certain productive function.

It becomes a LCS when it is accepted as such, that is, when it is taken as a reference or standard of a certain occupation. As it is a standard, it allows to compare a certain performance observed against a point of reference so as to establish if the performance corresponds to that point of reference or not. From this, it can be gathered that LCS are the basis for the assessment of competencies. Moreover, they are the basis for the design of training programmes since they are basically the standard to describe the competencies required for performance.

According to CONOCER, a technical standard of labour competency usually includes:¹

¹ CONOCER, Power Point presentation by Agustín Ibarra Almada at the Andean Seminar on Competency-Based Training, Bogotá, 1998.

-
- What an individual should be capable of doing.
 - The way in which his performance should be judged.
 - The conditions under which the individual should demonstrate his competency.
 - The types of evidence that are necessary and sufficient to ensure that the performance has been consistent, and based on effective knowledge.

In addition, in terms of competency, LCS may describe:

- The ability to obtain quality results with the efficient and safe performance of an activity.
- The ability to solve problems that may appear while exercising the productive function.
- The ability to transfer knowledge, abilities and skills already possessed to other labour contexts.

21. What is the use of labour competency standards?

21

What is the use of labour competency standards?

LCS become a powerful facilitator to create a language shared by all actors in the training processes conducted at the enterprise.

LCS define a competent performance against which it is possible to compare the performance observed in a worker and detect the areas of competency that need improvement in order for the worker to be considered competent. They are a clear reference to judge whether the worker has the labour competency in question or not.

In this sense, LCS are the basis of a number of processes within human resources management: selection, training, assessment and certification.

A competency standard may offer a fundamental criterion for the selection of personnel for a wide range of occupations within the enterprise, rather than for just one job. It is a key element for the design of training curricula, since it establishes the elements of competency and the evidence and criteria of performance that may become guides for specifying the objectives of training modules and the learning objectives of each of the defined modules. Entrepreneurs will know what to expect from a training programme based on a competency standard. Workers will know what the training content will be from the LCS.

The assessment of labour competencies acquires a much more objective dimension when it is done by taking LCS as a reference. In this way, performance is verified with regards to the content of LCS, leaving aside possible subjective elements. Workers may know about the occupational content of the standards against which their performance will be compared in order to assess them.

Occupational certification also takes place with regards to LCS. In this way, the certificate gives a sense of possession to those who have obtained it, since it focuses on the description of their competencies taking a standard as the starting point. Therefore, workers will show certifications concerning what they are capable of doing, not only the training hours and the names of the courses they attended.

How are labour competency standards specified?

22. How are labour competency standards specified?

The following chart includes an average labour competency standard. It may be observed that it is formed by the unit of competency (minimum level of competency), elements of competency, performance criteria, evidence of performance, evidence of knowledge, field of application and a brief guide to conduct the assessment.

Traditional presentation of a competency standard

UNIT TITLE: The productive function defined at that level in the functional map. A general description of the set of elements.		
ELEMENT TITLE: What a worker is capable of doing.		
PERFORMANCE CRITERIA A result and an assessment statement that proves the worker’s performance, and, therefore, his competency.	EVIDENCE REQUIRED FOR ASSESSMENT	
	EVIDENCE OF PERFORMANCE	
	DIRECT PERFORMANCE Situations against which the work’s result is shown.	PRODUCT EVIDENCE Tangible results used as evidence.
FIELDS OF APPLICATION	EVIDENCE OF KNOWLEDGE AND COMPREHENSION	
It includes the different circumstances –at the workplace, materials and organisational environment– under which the competency is developed.	It specifies the knowledge that allows workers to achieve a competent performance. It includes knowledge concerning the principles, methods or theories applied to fulfil the action described in the element.	
ASSESSMENT GUIDE It establishes the assessment methods and the use of evidence to assess competency.		

It should be pointed out that the above is the traditional layout of the LCS used in experiences such as the ones of the United Kingdom and Mexico. Variations to this format may be found in the experiences organised at training institutions such as INTECAP, INA and SENA. Those variations maintain essential components such as the elements of performance and the corresponding evidence and criteria. The main differences may be found in issues such as: giving an alternative name to elements of competency (vocational accomplishments, achievements, etc.), making a more thorough description of the evidence of knowledge required so as to facilitate the development of competency-based training programmes, giving a detailed account of the tools and equipment used in order to give an idea of the assets of training workshops.

23. What is level of competency?

LCS have been prepared in order to determine real working conditions which may have different degrees of complexity, variety and autonomy. Such degrees represent the different levels of competency required for the performance of a job.

Within the competency standardisation and certification system of the United Kingdom, levels have been structured after the analysis of productive functions. The objective was to define a reference framework which could be broad enough to maintain the sense of flexibility and keep individuals' possibilities of transferring their competencies to new labour contexts.

The definition of levels of competency is considered within the structure of standardised systems of labour competency certification. By using this structure it is feasible to view the possibilities of promotion and transfer among different qualifications.

The five levels of competency defined by the United Kingdom are:

Level 1: Competency in the performance of a broad scope of labour activities, mostly routine and predictable ones.

Level 2: Competency in a significant and broad scope of labour activities, carried out in different contexts. Some of the activities are complex or not routine tasks and there is some autonomy and individual responsibility. It may often require the cooperation with other people, being part of a group or doing team work.

Level 3: Competency in a broad scope of different labour activities developed in a great variety of contexts which are mostly complex and not routine like. There is great responsibility and autonomy and it often requires controlling and providing guidance to other people.

Level 4: Competency in a broad scope of professional or technically complex labour activities, carried out in a great variety of contexts and with a substantial degree of autonomy and personal responsibility. It may often require being responsible for the work of others and the distribution of resources.

Level 5: Competency which involves applying an important scope of fundamental principles and complex techniques in a broad and sometimes unpredictable variety of contexts. It requires a high degree of personal autonomy and, frequently, great responsibility regarding the work of others and the distribution of substantial resources. Furthermore, it requires personal responsibility regarding analysis, diagnoses, design, planning, implementation and assessment tasks.

These levels of competency have served as a model in other systems and can currently be found, practically in the same way, in the systems applied in Mexico, Colombia and Chile, among other countries. They can also be found in countries of the English Caribbean such as Barbados, Jamaica and Trinidad and Tobago.

24. What are occupational areas?

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What are occupational areas?

The breakdown with the traditional trend of designing occupational descriptions at the level of job positions has fostered a new way of classifying and describing occupations according to occupational areas. These are general groups of similar occupations that share the same technical and scientific principles or that are carried out within the same sectoral environments.

Many countries have classified the labour market according to large occupational areas. The common factor in such areas is representing a group of occupations that are alike which, as such, imply similar environments, materials, relationships and knowledge.

Since one labour function can occur in various fields of the economic activity, CONOCER² (Mexico) has introduced the concept of an area of competency as a group of functions that apply to one same type of work regarding the production of goods and services in a similar way.

The occupational vocational training system of Spain also uses a quite similar concept. By the term Vocational Area, they mean a group of occupations within the framework of one stage of, or the whole productive processes and/or productive activity that may have vocational contents in common.

In order to establish vocational areas, sectoral studies and a repertoire of occupations are taken into account. These inputs are grouped according to labour processes and training contents in common, in such a way that, occupations which have similar characteristics make up a Vocational Area.

² CONOCER, *Sistemas normalizados y de certificación de competencia laboral*, Mexico, 1997.

Occupational Areas of National Vocational Qualifications in the United Kingdom

1. Keeping the land, plants and animals
2. Extraction of natural resources
3. Engineering
4. Manufacturing
5. Transportation
6. Goods and services
7. Social and Health Services
8. Financial and Business Services
9. Communication
10. Development of knowledge

Source: www.qca.org.uk

Areas of competency in the Mexican system

1. Agro-industrial and forestry plantations and animal husbandry processing
2. Extraction and benefit
3. Building industry
4. Technology
5. Telecommunications
6. Manufacturing
7. Transportation
8. Sales of goods and services
9. Financing, management and administrative support services
10. Health and social protection
11. Social communication
12. Development and extension of knowledge

Source: CONOCER

Occupational fields in the system of New Zealand

1. Agriculture, forestry and fisheries
2. Arts and crafts
3. Business
4. Community and social services
5. Computing and information technology
6. Core generic
7. Education
8. Engineering and technology
9. Health
10. Humanities
11. Law and security
12. Manufacturing
13. Maori
14. Planning and construction
15. Sciences
16. Service sector
17. Social sciences

Source: www.govt.nz

When these areas of occupational performance are associated with different levels of competency and these are, at the same time, articulated with the existing educational offer of a country we are facing a National Qualification Framework. Countries have recently defined these frameworks of reference in order to harmonise their employment policies, training and education. Furthermore, the introduction of these frameworks facilitates mobility and allows making the concept of continuing learning real.

25. What is a classification of occupations?

It is a system of data and information about occupations that provides a framework for analysing, adding and describing the contents of work as well as a system of levels and areas to organise occupations in the labour market.

SENAI (Brazil) defines the National Classification of Occupations as a system which classifies the usual occupations of the economically active population of a country. In Brazil, it is called the Brazilian Classification of Occupations (CBO).

According to SENA (Colombia), the National Classification of Occupations is a systematic organisation of occupations that occur within the Colombian labour market, taking into account some classification principles or criteria.³

The International Standard Classification of Occupations (ISCO) defines an occupation as a set of jobs in which similar tasks are carried out. At the same time, a job is defined as a set of tasks assigned to only one person.⁴

ISCO, 1988, introduces the concept of competency within its criteria of organisation. The previous version, 1968, dealt mainly with statistic disaggregation concepts, ordered in the following way: group, sub group, primary group and occupational category. In fact, it defined occupation as “the most reduced group of work that can be found in the classification system” that covers several “jobs” or “posts” carried out by workers. Occupations were described by ISCO-68 according to general functions and the assigned tasks.

Labour competency is defined by ISCO-88 as the “ability to perform tasks inherent in a particular job” and these have different levels and degrees of specialisation.

The “level of competency” is connected to the degree of complexity and diversity of tasks. Specialisation of compe-

³ SENA, Employment Bureau, *Clasificación Nacional de Ocupaciones*, Bogota, 1998.

⁴ ILO, *International Standard Classification of Occupations*, CIU8-88, Geneva, 1991.

tencies “is related to a wide range of knowledge required, the tools and machines used, the material which is used to work with as well as with the nature of the goods and services that are produced”.

According to ISCO-88 four levels of competency were defined and although they were linked to educational levels, it was still considered that they could be acquired by means of “informal training” and experience. These four levels are:

1. First grade education (according to the International Standard Classification of Education), which is usually started at the age of 5 to 7 and lasts five years.
2. The first and second cycles of secondary education. The first cycle lasts around three years and is started around the age of twelve and thirteen; the second cycle covers the following three years. Sometimes, this level includes occupations that require specific theoretical and practice training as a way of learning.
3. The education of category 5 in ISCED covers four years and it does not involve university studies.
4. It covers the education that is usually started at the age of 17 or 18; it lasts four or more years and it involves university or higher education.

Notice that in level 2, vocational training is included for new workers, even the learning contract mode. Level 3 corresponds to technical and technological higher education

The so-called “major groups” make up the most general level of aggregation. Those groups are:

1. Members of the Executive and Legislative Power, State Senior Officials and Managers of companies
2. Scientific and intellectual professionals
3. Technicians and associate professionals
4. Clerks
5. Service workers and shop and market sales workers
6. Skilled agricultural and fishery workers
7. Officers, operators and craftsmen of mechanical arts and other crafts
8. Plant and machine operators and assemblers

9. Elementary workers

10. Armed forces

This classification, as well as that of 1968, keeps combining two different concepts in the major groups: educational levels and areas of performance. The major groups 2 and 3 are thus more related to professional classification categories which are very much associated to the training received. Groups 1 and 0 seem to be exceptions to the specific characteristics of occupations (ones regarding management and others within the armed forces). Nowadays occupational analyses usually consider two dimensions: the area in which the work is carried out and the level of preparation (training or competency) required for such performance.

The possibility of combining a criterion of level of competency with that of a large occupational group has enabled some countries, such as Canada, Spain, United States of America and Colombia to develop their own national classifications of occupations keeping this methodological aspect but also improving the concepts of a large group and level of competency.

Within these occupational classifications, it is possible to find large groups defined as areas of performance; this means the connotations regarding the level of education found in the definition of area of competency disappear. Furthermore, the level of competency is defined associated with: the degree of complexity of labour performance, the knowledge required by the occupation, the required occupational level, the autonomy, the degree of received supervision, the responsibility of verifying others' work, the ability to decide on materials and processes, among other things.

The ability of the classification of occupations has been fostered as an instrument to achieve a comprehensive framework of labour competencies in the market. In Canada, a chart of occupational classification was improved with new areas of performance and five levels of competency, which apart from enabling comparisons and statistic analyses, are of great use for the development of occupational guidance and labour market description programmes.

The experience of CONOCER in Mexico in the implementation of a standardised system of labour competency has enabled the creation of a "qualification chart" with a concept similar to that of an occupational classification chart. The basic concept is placing the areas of competency in the columns and the levels of competency in the rows. The cells in the intersection between one row and one column shall define units of basic, general and specific competency.

Qualification chart

Areas		Extraction and benefit	Building industry	Technology	Sales of goods and services
LEVELS	5				
	4				
	3				
	2				
	1				

What is a labour competency chart?

Source: CONOCER, September, 2002.

26. What is a labour competency chart?

A labour competency chart is build up by making a double-entry chart in which levels of competency are placed in rows while areas of competency are placed in columns.

The junction between levels of competency and area of competency defines sub-areas of competency: it is possible to place vocational qualifications made up by sets of units of basic, general and specific competency.

In countries such as Canada and United States, the amount of areas of competency varies but it keeps the five-level criterion. Although the occupational classification tools do not yet match with the charts of competency, the approach of labour competency that facilitates the concept of level and area of competency has fostered this approximation.

In Colombia, SENA adopted this structure as a reference to organise the National Classification of Occupations (CNO: Clasificación Nacional de Ocupaciones). The unification of an instrument such as the CNO that considered the labour market according to occupational contents and not only as an element of statistic classification facilitates the integration of market information systems with training instruments.

The following diagram shows the chart of the CNO suggested by SENA, Colombia:

LEVELS OF PREPARATION \ AREAS OF PERFORMANCE	1	2	3	4	5	6	7	8	9
	FINANCE AND MANAGEMENT	NATURAL AND APPLIED SCIENCES AND OTHER RELATED OCCUPATIONS	HEALTH	SOCIAL STUDIES, EDUCATION, GOVERNMENTAL SERVICES AND RELIGION	ART, CULTURE, SPORTS AND LEISURE	SALES AND SERVICES	PRIMARY INDUSTRY OCCUPATIONS	CRAFTS, OPERATORS, EQUIPMENT AND TRANSPORTATION AND OTHER RELATED OCCUPATIONS	PROCESSING AND MANUFACTURING INDUSTRY OCCUPATIONS AND PUBLIC SERVICES PROVIDERS
0 Management occupations									
Level of preparation A									
Level of preparation B									
Level of preparation C									
Level of preparation D									

The area of performance is connected with the type of activity to be carried out in order to fulfil an occupational purpose. Thus, there are areas of performance related to the processes of manufacturing, equipment and transport operation, administrative and logistic support of productive processes, social studies, artistic creation or health care or services.

This chart takes up the concept of qualification level that covers a combination of factors required for the performance of occupations such as: amount and type of education, training or experience required for the performance, degree of complexity of tasks, degree of autonomy and responsibility which are typical of the occupation.

There follows a description of the levels of qualification of the occupational chart of SENA:

Level A: In order to be admitted in these occupations it is necessary to have fulfilled a university plan of studies at a bachelor, master or doctorate level. The tasks are usually varied and complex, their performance demand a high degree of autonomy, responsibility for others' work and, occasionally, regarding resources allocation.

Level B: These occupations frequently involve technical or technological studies. This level includes occupations with supervising responsibilities and activities that require creative and artistic aptitudes. The tasks corresponding to this level are in general very varied and a significant autonomy and assessment judgment for their performance is required. They frequently involve being in charge of others' work.

Level C: These occupations generally imply having fulfilled a learning programme, basic secondary education plus training courses, on the job training or working experience. The tasks involved in these occupations combine physical and intellectual activities, which are sometimes complex. The activities developed are usually varied and some degree of autonomy is required for their performance. It includes intermediate qualification occupations.

Level D: In order to access these occupations, a minimum of education is required, that is, primary education. Labour experience is not required or, in the best of cases, it is minimum. In general, tasks are simple and repetitive, they refer to the performance of mainly physical activities and they require a high level of subordination.

This classification does not mention a specific level for management occupations since obtaining this kind of occupation is often more linked to external factors other than education and training.

27. In which way is labour competency standardisation similar to quality management under ISO 9000?

The term quality is often heard within the field of training. Around the 80s, the issue of quality in training was associated to the supply of training with all the intrinsic characteristics such as qualified teachers, relevant teaching materials, adequate educational environments, updated training programmes, etc. Most recently, training institutions have considered the principles of quality management in order to implement the so-called Quality Management and thus ensuring that training processes are developed in a consistent way and according to a standard of quality.

In such sense, a highly accepted standard is the ISO 9000 family. Such standards enable the development of the concept of quality management as well as the implementation of a continuous improvement process within organisations. The series of ISO 9000 standards was adopted in 1987 by the European Committee of Standardisation and was then internationally adopted by ISO in 1994. The last version of the standard is from the year 2000. The certification principle under ISO standard is based on a revision and checking of compliance with the standard; it provides a uniform method for the inspection of quality.

ISO standards are mainly to do with processes to be consistent and systematic. They are therefore used with respect to the management of the vocational training process. They contribute with a methodology which seeks to standardise activities within an organisation so that they become reliable regarding the expected quality of products and/or services⁵ by customers. ISO standards are not related to the intrinsic characteristics of products or services; they are more focused on the quality of the processes that occur when elaborating such products. In other words: a VTI can be certified by ISO 9000 but its graduates will have to prove their competencies, be assessed and certified.

⁵ Vargas, F., *Quality management in vocational training*, Montevideo, Cinterfor/ILO, 2004: <http://www.cinterfor.org.uy/public/english/region/ampro/cinterfor/publ/papel/12/index.htm>

The certificate of quality is a clear message for customers about the higher probability they may have in finding their needs fulfilled in an organisation concerned about developing their activities within a framework of total quality. Furthermore, procedures of certification and the standards themselves represent a set of standardised criteria that create a sort of common currency which is becoming widely used.

A certificate of quality of ISO 9001 standard implies the same for a client of a company in America, Europe or any other part of the world. The achieved standardisation shows a positive sign of the activities that ensure the quality availed by the certification.

Quality standards, however, do not guarantee, on their own, management improvement, the flow reduction, a better relationship with customers and the global success of the institution. They demand for an institutional relationship framework in which the conviction about the need to work properly and to do this from the beginning is set as a priority.

This aspect, which is based on the management of human resources, has to do with taking organisational measures that promote the culture of quality and which results truly convincing to all involved parties. It requires developing training actions that allow workers to reach the expected and documented product standards.

We can therefore say that the link between quality standards and labour competency standards has three main areas. The first one has to do with training, since ISO standards consider that it is essential for organisations to identify needs and develop training programmes for their workers. These actions will be much more effective if they address the development of competencies fully defined and shared by the involved parties.

The second area in common is that both standard systems share the logics involved in the certification process itself. This is based upon the use of standards, workers' participation and the assessment by an external verifier who knows the standard and checks its compliance by the candidate. Both standards aim at complying with the expected performance equally in terms of quality management and in terms of competent performance.

The third one has to do with knowledge management. The experiences of applying ISO standards have proved the need to advance in a training process for all workers. This learning is connected with structuring, building, improving and recording processes. The people involved in these activities must go through reflection and analysis processes; questioning and description proce-

dures, record them and apply them and update the information in the system registers. This implies a systematic procedure of coding and decoding information, and finally tacit and explicit knowledge. Thus, the analysis caused by the implementation of quality management through ISO standards, becomes a learning process. In many companies, and particularly in training institutions, the reflection upon educational practices and the elaboration of materials is continuously introducing this learning dimension and the broadening of the organisational knowledge.

This is usually recognised as new learning methods such as “learnt lessons” or “good practices” which make up the “knowledge generated in working processes”.⁶ The evolution of the documentation of processes and its analysis and continuous improvement entails an extraordinary learning opportunity for VTIs and has in fact made public a great amount of knowledge which has remained and is frequently applied. Both labour competency standards as well as ISO standards are seen as powerful instruments of decoding knowledge; thus contributing to better organisational management.

Nevertheless, the issue of standardisation must be dealt with care, both in terms of competencies and of quality management. The description of organisational processes and procedures shall be efficient if it does not imply an over-description which, if too detailed, may omit the descriptive aspect of the standard. The documentation process developed during the implementation of the ISO standard implies the decodification of knowledge and within it “the abuse in decodification may reduce the learning spaces and cause, in the long-term, a stagnation in the evolution of the organisation.”⁷

At the same time, while drawing up competency standards, too many details in the descriptions or in the performance criteria may, eventually, reduce the feasibility of assessing through them.

On the other hand, the relationship between ISO standards and training actions is clear; even ISO 9000 version of the year 2000 is more specific than that of 1994 regarding the training of personnel. While 1994 version stated: “keep recorded procedures in order to identify the training needs and train all the personnel involved in tasks that may affect quality. The personnel that

⁶ Peluffo, Martha; Catalán, Edith, *Introducción a la gestión del conocimiento y su aplicación en el sector público*, Santiago, Chile, ECLAC, 2002, Serie Manuales.

⁷ Villavicencio, Daniel; Salinas, Mario, *La gestión del conocimiento productivo: las normas ISO y los sistemas de aseguramiento de calidad*, in *Revista Comercio Exterior*, Mexico, June 2002.

carries out tasks in a specific way must be qualified according to education, training and/or adequate experience when this is required”; 2000 version stated that: “The personnel who carries out tasks that may affect the quality of products must be competent based upon education, training, skills and appropriate experiences.”⁸

But, the way in which standardised systems work in ISO 9000 and in labour competency can also be compared regarding:⁹

- **Concepts and terms:** They produce concepts and general terms that enable their application in different contexts, and are therefore open systems that each organisation may adapt according to its needs.
- **Documentation:** While quality standards describe the characteristics of processes; competency standards describe the characteristics of the expected results (performance criteria).
- **Verification:** In both standard systems an external verifier gathers evidence as to whether the standard is being complied or not. In the case of ISO about aspects such as the existing documentation and registers; in the case of competency standards about issues such as the worker’s performance.
- **Organisational culture:** None of the systems represent mere changes in the way of doing things. Their success lies in their effective integration into the organisational culture. The idea of certifying implies advancing in a continuous improvement process towards the overcoming of all non-conformance factors until obtaining a certificate with everyone’s participation.
- **Processes and people:** While ISO standards provide evidence of different processes and products obtained, competency standards describe the results that people should be able to obtain.
- **Participation:** ISO standards are previously set; the participation process of workers may take place regarding the registration and preparation of manuals. On the other hand, since workers take part in this process there are more representatives and there is greater commitment during the elaboration of competency standards.

⁸ Vargas, F., *Quality management...*, op. cit.

⁹ Mertens, Leonard; Baeza, Mónica, *La norma ISO 9000 y la Competencia Laboral*, México, ILO-CIMO-CONOCER, 1998.

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- **Prospective:** Quality standards focus on the creation and verification of conditions for the present, for current processes, though during their implementation, there may arise new improvements oriented to neutralise non-conformances. Whereas competency standards may include a positive ingredient that allows to anticipate new demands in the expected result of work and minimise their risk of becoming obsolete.
 - **Complementation:** A joint application of ISO standards and labour competency standards is absolutely desirable and favourable. Since ISO standard does not prescribe ways of doing and it only describes what has to be done, labour competency standards may complement it by developing the expected results of work. Much of the information included in competency standards link the evidence of performance with the specifications set by the company; such specifications are always registered in the manuals elaborated for certification in ISO. At the same time, the information derived from competency standards can be used to reinforce the necessary documentation for ISO certification process.

28. How is quality management being applied at vocational training institutions?

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How is quality management being applied at vocational training institutions?

Vocational training institutions of the region have, progressively, incorporated quality management as well competency-based training. Both trends complement each other in the sense they affect the ways of working, the elaboration of training programmes and their delivery, and therefore the organisational culture as a whole.

Elaborating competency-based training programmes has meant, for training programme organisations, the adoption of new ways of relating with customers, workers and employers. There prevail dialogue mechanisms such as standardisation committees, sectoral consultation councils or working teams. Their main role is generating inputs for the identification of competencies and their later transformation in relevant training programmes.

This kind of work has caused great changes in the usual practices of institutions and has, in general, modified the traditional mechanisms of relationship as well as their processes and procedures. The actions that foster training opportunities at sectoral and local levels have become more significant and have produced immediate answers due to the generation of employment which requires qualified workers.¹⁰

This has implied the generation of new processes and procedures and has reinforced the need of a quality policy that facilitates active processes to be as coherent, systematic and effective as required nowadays. Furthermore, the interest to improve quality arises from the need to improve the perception of the institution by customers who expect that the training received matches to the skills and competencies required at a job. Considering the increasing demand for training and the quick changes in its environment, it has become necessary that training providers prove to the society that they have done

¹⁰ There is a thorough analysis on this aspect in: Casanova, F., *Local development, productive networks and training*, Montevideo, Cinterfor/ILO, 2004: http://www.cinterfor.org.uy/public/english/region/ampro/cinterfor/publ/loc_dev/index.htm

a well-done job. Besides, the resources allocated to training are so important that it is often necessary to analyse its correct use and, above all, its impact in which the quality management throughout the training process will undoubtedly be of great importance.¹¹

Many institutions have thus begun to accumulate tacit and explicit knowledge by means of tools such as quality management and certification under ISO 9000 standards. This quality approach, which is focused on processes, seeks to create a full circle of improvement beginning from its analysis, documentation, dissemination and continuing improvement.

Many countries in Latin America have developed versions specifically addressed to training institutions with the purpose of helping to ap-

Key issues in the quality management of educational processes

- Customer focused
- Quality policy
- Responsibility, authority and communication
- Provision and management of resources
- Competent human resources
- Infrastructure and working environment
- Planning and making up the product
- Design and development
- Purchase process
- Control of follow-up and measurement devices
- Customer's satisfaction

Source: Quality management in training, Cinterfor/ILO, 2003.

ply the ISO 9000:2000 standard. In Chile, SENCE supported the elaboration of the Norma Chilena (Chilean Standard) NCh2728:2002 for Organismos Técnicos Ejecutores de Capacitación (training supplying technical bodies).¹² In Argentina, the Instituto Argentino de Normalización IRAM (Argentinian Standardization Institute) designed the Guía de interpretación de la IRAM-ISO 9001 para la educación (Guide for the interpretation of IRAM-ISO 9001 for education). Peru holds the Guía para la aplicación de la NTP-ISO 9001:2001 en el Sector Educación (Guide for the application of the NTP-ISO 9001:2001 in the Education Sector) which was elaborated by the Comisión de Reglamentos

¹¹ Vargas, F., *Quality management...*, op. cit.

¹² www.sence.cl/normacalidad

Técnicos y Comerciales –INDECOPI– (Technical and Commercial Regulations Commission).

Any institution interested in ISO certification must follow a process that, in general, has the following stages:

- Study the certification standard that is likely to be taken (in ISO family, 9001 is certifiable).
- Determine the scope of certification; this may cover a whole institution, one or many training institutions or a particular process (for example, it is possible to exclude administrative processes which are not directly linked with training).
- Inform and raise awareness within the institution and among the involved workers.
- Develop a certification process. Produce quality manuals and procedures.
- Apply ISO requirements in terms of: internal audits, control of documents, revision of management, corrective and preventive actions, registers, etc.
- Contact a certification body that verifies the compliance with the standard by means of controls, manuals review and confirms a quality system is being applied.

Nowadays, there have been experiences of quality management certification using ISO standards in SENAI, SENAC and SENAR in Brazil; SENCE in Chile; SENA in Colombia, INA in Costa Rica; INTACAP in Guatemala; CONOCER in Mexico and SENATI in Peru.¹³ Other training institutions and centres are in their initial stages; in Brazil some have even tried to certify quality laboratories and their environmental management.

¹³ The description of these experiences is available at www.cinterfor.org.uy/calidad and in Vargas, F., *Quality management...* op. cit.

D. Certification of competencies

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How is certification of labour competencies defined?

29. How is certification of labour competencies defined?

It is a public, registered, formal and temporary recognition of the working ability shown by a worker. It is done based on the assessment of his competencies regarding a standard and without being necessarily subject to completing an educational process.¹

Certification is the completion of a process of formal recognition of the competencies of workers; it involves the opinion of an authorised institution, the accreditation of the competency of a worker. Certification is usually granted as a recognition of the completion of a training process, based on training and practice as well as the assessed contents. This does not necessarily mean the assessment of competencies.

This broader concept of certification is meant to place it far from an academic notion of a credit obtained after completing certain studies and having correctly worked out a number of tests; the idea is in fact closer to a description of the actual labour abilities of a worker and, in some cases, the way in which he acquired those abilities becomes even less important. It is closer to the idea of recognising knowledge or prior learning, as it is called in some countries.

There exist some experiences in the scope of certification within the region since the 70s. For instance, a project carried

¹ Irigoín, M.; Vargas, F., *Competencia Laboral. Manual de conceptos, métodos y aplicaciones en el sector salud*, Montevideo, Cinterfor/ILO, 2002.

out by Cinterfor/ILO in 1975 was oriented to measure and certify the qualification acquired by training courses or labour experience or by the combination of both. Since then, training institutions discovered that it was necessary to recognise labour abilities that workers had obtained during their working experience and to provide labour mediation systems with better tools to offer candidates the most appropriate jobs. Certification was then defined as a “process aiming at the formal recognition of occupational qualification of workers, without taking into account the way in which those qualifications were acquired”.²

The purpose of certification is recognising workers’ competency: such recognition implies both an assessment and a training process. Certification is a synthesis in the training process of a person but it is not the end; it is a continuous process validated throughout working life. The certificate implies an assessment process of the competencies recognised in it.

A labour competency certificate refers to a particular performance in which a worker has proved to be competent by means of the assessment of competencies. The certificate is based upon a labour competency standard and, as it was stated above, the standard was build up from the necessary competencies to have an effective performance at a particular working situation.

SENAI, Brazil, defines certification as the formal recognition process of the competencies of a person, without considering the way in which they were acquired.³

In INEM, Spain, certification is defined as “the issuance of a certificate by labour authorities, training organisations or authorised people who recognise that a worker is capable of applying the necessary knowledge, skills, attitudes and behaviours in order to perform a particular vocational activity.”⁴

According to the Mexican system, certification is defined as a process in which a third party organisation recognises and certifies that an individual has proved to be competent in a specific labour activity, without considering the way in which he has obtained such competency and in accordance with a nationwide recognised standard.⁵

² Agudelo, Santiago, *Certificación Ocupacional. Manual didáctico*, Montevideo, Cinterfor/ILO, 1993.

³ SENAI, *Metodologia de Avaliação e Certificação de Competencias*, Brasília, 2002.

⁴ INEM, *Metodología para la ordenación de la Formación Profesional Ocupacional*, Madrid, 1997.

⁵ CONOCER, *Sistemas Normalizado y de Certificación de Competencia Laboral*, Mexico, 1997.

INA, Costa Rica, defines certification as the “official recognition of vocational qualifications of a person (knowledge, skills and attitudes), without considering the way in which they were acquired, both by means of participating in systematic actions of vocational training or as a result of developing a profession without prior training.”⁶

Many more countries, institutions and training systems are now taking measures for the recognition of competencies developed out of school. In Brazil, SENAI is advancing on a national strategic project which is doing pilot application in several occupational sectors in order to certify competencies acquired throughout experience. In Chile, SENCE, together with Chile Califica programme, which was working with the private sector, deals with another component which articulates training actions with the certification of competencies obtained at work for, initially, nine occupational sectors. In Argentina, the Ministry of Labour, financed by IADB/MIF, has developed a programme in four sectors of the economy which designs and tests mechanisms of certification and training of workers.⁷

The recognition of competencies developed in the exercise of the worker’s profession can become a powerful motivation to acquire new competencies; it creates better signs for the elaboration of training programmes and these become more accurate since they cater for the required training needs in order to reach a particular level of competency.

The certification of competency now attains a value related to the employability of workers as long as certificates refer to competencies in a broad sense and facilitate the transferability among different occupational contexts.

Besides, the term “continuing and life-long training” recognises the restricted validity of a certificate. In fact, the owner of a certificate must update certification within the agreed deadlines. This will guarantee that one has been aware of the changes that may have taken place in the organisation of work and technology within the occupational area.

Other characteristics of the certification of competency are:⁸

⁶ Experience carried out by INA within the framework of *Normalización, Formación y Certificación de Competencias Laborales*, INA, 2001.

⁷ In Chile, the sectors are: gastronomy, incoming tourism, viticulture, mining industry, gas and electricity, IT, fruit culture, logistics and transportation, and metal-mechanic: see more information at: www.sence.cl www.chilecalifica.cl. In Argentina the following sectors are covered: printing sector, food, motor vehicle and metal-mechanic; more information can be found at [www.cinterfor.org.uy/competencias/observatorio de experiencias](http://www.cinterfor.org.uy/competencias/observatorio-de-experiencias)

⁸ Vargas, F., *Competencia Laboral en la práctica*, Montevideo, Cinterfor/ILO, 2004.

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- *It is done within a consistent occupational framework* which allows everyone to identify the contents of the occupation which is being certified. This is the way in which the following frameworks work: National Vocational Qualifications (NVQ) in the United Kingdom, the Qualification Chart (“Matriz de Cualificaciones”) in Mexico or the National Catalogue of Qualifications (“Catálogo Nacional de Cualificaciones”) in Spain.
 - *It requires a framework of legitimacy and appraisal for the certificate.* This means it has to be appraised by entrepreneurs, workers and the State. The value of a certificate can be compared with that of money. A note will not be worthier because of its design, colour or size; its value will be that given by the society and economy which make use of it.
 - *It must be carried out with a simple mechanism,* without bureaucracy and it has to be less expensive for the user than other alternatives. If we go back to the metaphor of money,⁹ people use it because it is a better element of reference to understand each other than, for instance, exchanging apples for cheese or salt for rice.
 - *It should be legitimate and credible.* This means the certification process must be originated from a credible and socially acknowledged institutional mechanism. If there are many types and sources of certificates, the bad ones will soon replace the good ones. Many people will prefer obtaining certificates of lower quality which will surely be cheaper and less strict.
 - *It should foster transparency.* This implies that a worker should know what is stated in the certificate about him and what is expected from his performance. At the same time, the employer should be able to see the type and scope of the competencies of the worker.
 - *It has to allow for the shaping of the concept of lifelong learning.* Because it recognises all knowledge and skills acquired in every circle of life, but also because it is articulated with the offer of training opportunities that may be supplementary to those competencies not yet acquired. The process of competency recognition must offer all educational and training possibilities in order to promote the candidate’s vocational development. The creation of a learning culture implies, among other things, increasing training opportunities.

30. Who certifies labour competencies?

30

Who certifies labour competencies?

According to the system involved, the certification of labour competencies can be carried out by:

- The vocational training institution where the worker took the training courses or where the required competencies were assessed for the certificate.
- An independent organisation that works with certification of competencies.

There is often a debate arising from the situation of having two options which is explicit some of the times and not so in some other occasions. In many cases, the fact that there is limited knowledge about how certification systems work results in people favouring one or other alternative, without having analysed much. As it is usually the case with institutional designs, the least successful option is always the one which seeks to transfer, without much consultation, a successful model in a particular situation and context into another environment which is often different.

Experiences about certification in Latin America have shown that the most important aspect is the quality and impartiality in which the process is carried out and not who actually certifies. An assessment process of quality may well be developed by the same institution that was in charge of training. In the same way, this institution must work together with representatives from companies and workers in order to ensure that competency standards and assessment actions are relevant and reliable. The assessment has to guarantee that results are reliable, impartial and valid. But, at the same time, a good assessment needs the appropriate environments, the connection with the labour world and the knowledge on techniques of collection of evidence; and training institutions and centres have great advantages in this sense.

The discussion about the implementation or adaptation of a particular model should take this into account since in many cases, there is a tendency of automatically transferring the structure of the certification of processes or goods to the scope of

certification and recognition of people's competencies. Training institutions are very much prepared to carry out the training process, and the assessment that leads to the certificate is, above all, a formative assessment.

A research conducted recently by the European Union showed the differences among the national certification models¹⁰ of Germany, Belgium, France and England. Although all countries share the objective of keeping a training model capable of providing answers of quality to the demand of companies and considering the largest amount of youngsters and adults, the institutional arrangements are not the same. In the following chart, distinctive characteristics of several national cases¹¹ are compared.

The model of the United Kingdom insisted on the separation of the trainer, the assessor and the certifier. Such separation is done as a means of assuring the quality and transparency of the certificate. Certification bodies are, in many cases, institutions which have existed for a long time and which have represented the interests of unions from their initial stages. There is not a tradition of national training institutions or of social dialogue which may arise during the processes of elaborating competencies.

In Great Britain, it was not until the end of the 19th Century, after the Technical Education Act was officially announced in 1889, that organisations such as the "City and Guilds of London Institute" were allowed to make agreements about technical education and its certification by working with local councils. Certification was left to the initiative of a broad series of examination boards. They considered certification as business but they intended to settle it in all professions.

Source: CEDEFOP, *Certification and legibility of competencies*, 2001.

¹⁰ Boudier, Annie et al, *Certification and legibility of competencies*, CEDEFOP, 2001.

¹¹ Vargas, F., "Cuatro afirmaciones sobre certificación. Todas falsas", in *Cinterfor/ILO's Bulletin* N° 153, 2002.

Institutional characteristics of certification in Europe

CHARACTERISTIC	GERMANY	FRANCE	SPAIN	ENGLAND
Main characteristics	Alternate training company-centre (dual training). Companies are in charge of training.	Education and VT are regulated by Ministry of Education. Recognition of prior learning for adults. Several certification programmes in companies.	Three subsystems of training: <i>Initial</i> , within the educational cycle; <i>Occupational</i> , for the unemployed and, <i>Continuous</i> , for workers.	A national framework of levels and areas of competency regulated by the National Authority in charge of educational and labour issues.
Regulating body	Federal Institute for Vocational Education and Training (BIBB)	Ministry of Education	National Qualifications Institute (INCUAL)	Qualifications and Curriculum Authority (QCA)
Standards	National, established by BIBB	National references established by the Ministry of Education	Occupational profiles established and regulated by Royal Decree	Established by Entrepreneurial Chambers
Strengths	Labour Practice. Companies in charge of training. National standards under one only authority.	Highly reliable regulation because of being public and national. Integrated education and VT.	National references focused on different clients. VT integrated to educational system.	National comprehensive and integrating framework. Integrated education and VT.
Weaknesses	The dual system's efficiency is questioned since it is focused on only one practice	Employers criticise the system due to the low applicability of diplomas because academic knowledge is still more important.	More coordination among the initial, continuous and occupational training systems is required.	The description of qualifications, though objective, was excessive.
Historical background	First standards of industrial training: 1925. Dual system: 1964.	1 st School of Arts and Crafts: 1803. Creation of CAP: 1919.	Technical institutes established in 1925. First certificates in the mid 70's. General Education Law in the late 90's.	Private initiatives for training: 1878 (City and Guilds). Competency standards in the late 80's.

Sources: Based on: QCA, *Report of the Independent Review of the UK National Occupational Standards Programme*, 2001. CEDEFOP, *Certification and legibility of competencies*, 2001. Fretwell, David, *A Framework for defining and assessing occupational and training standards in developing countries*, 2001.

In Latin America, great advances are being done in order to build up models that respond to the needs of countries, instead of replying to an argument based on the success of an experience not yet proved. In Mexico, after more than seven years of work, CONOCER is now concentrated on giving more relevance to its competency standard with respect to the needs and language of enterprises. After a great effort developing standards, certification was actually registered as a bottleneck. It showed that certifications are not demanded for all areas of performance and that it is necessary to narrow the mechanisms related with the costs and limits it may impose on the poorest workers.

In Colombia, SENA has gained, in the last 5 years, a wide experience in making up “sectoral working groups” in which entrepreneurs together with workers, local representatives and people from educational institutions develop processes of sectoral characterisation, competencies identification and elaboration and validation of training programmes.¹²

The programme Chile Califica has advanced in standardisation and certification experiences and promoted the independence between certification and training. Note that in the Chilean model, financing has been separated from implementation; and now, with the introduction of certifying bodies, a quality assurance mechanism is carried out on training bodies. However, a surprising characteristic of this case is the fact that there is no separation between the one who assesses and the one who certifies. After different tests, they noticed that in this context it was less convenient to carry out these two processes in different institutions.

But this is not the only possible arrangement: ISO 17024 standard, which is applicable to certification bodies, states: “a certification body could provide training, if it does so, it should clearly show the way in which it deals with the separation between assessment and training in order to guarantee confidentiality, objectivity and impartiality”.¹³

In short, the answer to this question depends on the institutional design and on what social actors feel it more convenient to obtain a transparent, effective and qualified certification system. Even when analysing the institutional design it is important to consider the perspective of the drives for certification. Alexim and Lopes (2004) describe three trends: the first one is originated in huge companies which are interested in certification as a mechanism associated to insertion policies. The second one is the educational trend which em-

¹² More information at www.sena.edu.co / sistema nacional de formación para el trabajo

¹³ ISO 17024 Standard “General requirements for bodies operating certification of persons”.

braces the efforts made in order to create national systems of recognition of competencies associated with the possibilities of both entering or re-entering the educational system and the labour market. Finally, the labour market trend whose hallmark is the recognition of competencies acquired and aggregated throughout the working experience.¹⁴

There are different actors and drives in each of these trends, as well as different institutional arrangements. Undoubtedly, social dialogue mechanisms are fundamental when defining how a specific system is designed.

31. What is labour competencies assessment?

This issue has been greatly discussed when developing training and competency-based certification models. In fact, assessment is a crucial stage, it is a key aspect of certification and it enables the identification of eventual training needs. The following are some definitions of assessment of competencies:

SENAI¹⁵ defines it as the process of collecting evidence about the vocational performance of a person with the purpose of forming an opinion about his competency with respect to a vocational profile and identify the areas of performance that should be strengthened by training or other actions in order to accomplish the required level of competency.

CONOCER from México¹⁶ has defined assessment of competencies as the process of collecting evidence about labour performance of an individual, with the purpose of determining whether he is competent to do a particular working activity or not yet.

Other aspects of competency-based assessment can be illustrated by the following definitions:

¹⁴ Alexim, João Carlos; Lopes Evangelio, Carmen Lucia, “A Certificação profissional revisitada”, in *Boletín Técnico SENAC*, 2003.

¹⁵ SENAI, *Metodologia de Avaliação e Certificação de Competencias*, Brasília, 2002.

¹⁶ CONOCER, op. cit.

The purpose of competency-based assessment is collecting enough evidence to prove that people can perform a particular activity according to specific standards (Fletcher).¹⁷

Assessments do not depend on the time spent in formal educational institutions (Grant, 1979).

In standardised certification systems of labour competency, the assessment of competencies becomes a process of checking evidence of performance comparing it to what is established by the standard. The verification of evidence can be carried out in different ways and according to different types of evidence, as it is shown in the chart below.

In the United Kingdom, assessment can be carried out directly by the certifying body or by a specialised assessment centre, whose quality is closely supervised by the certifying body, and which should have been recognised in the first place. In Mexico, the assessment centres that have been recognised can be part of training bodies but in this case they assess the candidates that have not been trained in such centres. Thus, it has been recognised that part of the success in the assessment requires an environment and deep knowledge of the training process.

Assessment experiences in Brazil, for certain sectors of the economy such as soldering and industrial maintenance, use assessment centres that may work at SENAI Centres. The emphasis is placed on an adequate definition of profiles and instruments of assessment with the purpose of guaranteeing the effectiveness of the process.

The transparency and reliability of the certification system are always privileged in order to give certificates a high value and credibility which will finally favour their holders. In any case, assessment and certification are based on the technical standard of labour competency.

¹⁷ Fletcher, Shirley, "Nuevas formas de evaluación y certificación", in: *Competencia Laboral. Antología de Lecturas*, México, CONOCER, 1997.

Methods to collect evidence

METHOD	DESCRIPTION
Oral questions	<p>The candidate is interviewed, or observed at his working place, the candidate is usually enquired about causes of work, legal grounds, proceedings, principles, safety, ways of acting in unexpected situations and ways in which the knowledge is applied in the performance of work.</p> <p>A debate technique can also be used with questions like: what if? It is also possible to request the candidate to do a presentation on the characteristics of his work or about a particular issue to be assessed.</p>
Written questions	Tests that include different types of questions oriented to establish the basic knowledge about work, principles, safety issues at work, environmental impact or about technical and safety proceedings.
Observation of performance	It is the most advisable and cheapest source of collection of evidence. It is a good idea to find the evidences that normally occur as a result of work. It should not interfere with the normal development of activities. It is important to be careful to avoid exerting pressure or stress on the worker.
Task distribution mocks	These take place when it is necessary to collect evidence about unusual situations, situations that occur later than expected or situations that do not take place very often. This is the case of safety emergencies in order to check the worker's ability to follow evacuation procedures or to help co-workers.
Products of work	Check the quality of products that are obtained through the performance of the candidate with respect to the standard. It includes elaborating materials, final products and products that may serve as inputs for other co-workers within the labour process.
Portfolio or folder of evidences	Collection of materials that show prior performances and achievements and obtained products; duly authenticated by acknowledged assessors. These would not include only products but also photographic records, video or audiotapes. Written reports that prove their performance, credible evidence about his performance in previous situations such as unexpected cases.

Source: Adapted from: Mc Donald and others (1995); Fletcher (1992)

How is traditional assessment different from competency-based assessment?**32. How is traditional assessment different from competency-based assessment?**

Competency-based assessment is not a set of examinations; it is the basis for certification of competency and it is carried out as a process in order to collect evidence about the performance and knowledge of a person with respect to a labour competency standard. Thus it becomes a very valuable diagnostic instrument both for the worker and the employer.

Traditional assessment systems usually have some or all of the following characteristics:

- Assessment associated to a course or programme.
- Parts of the programme are assessed by means of subjects.
- Parts of the programme are included in final examinations.
- Passing criteria are based on marking scales.
- Questions are ignored.
- It is done within limited periods of time.
- Statistical comparisons are used.

On the other hand, labour competency assessment is defined as a process with several large steps:

- Setting of goals.
- Collection of evidence.
- Comparison of evidence with objectives.
- Opinion formation (competent or not yet competent).

Some of the characteristics of competency-based assessment are:

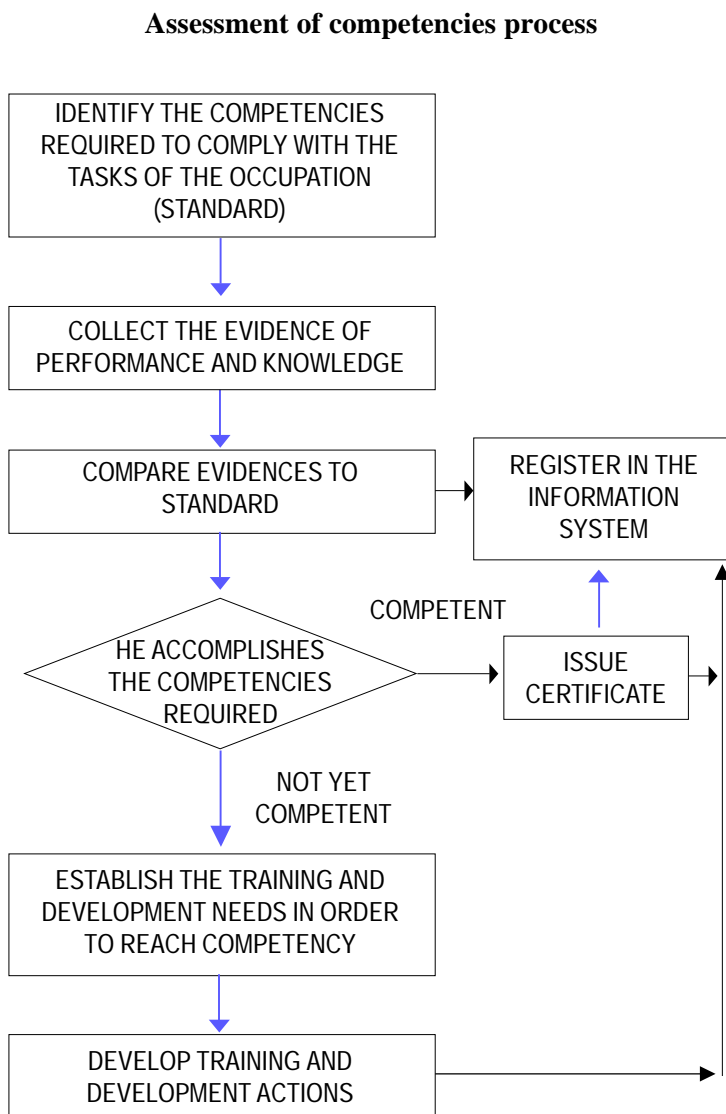
- It is based on standards that describe the expected level of labour competency.
- Standards include criteria that provide details of what they consider a good job.

-
- The assessment is individual, there is no comparison among workers.
 - It provides a judgement for the assessed workers: competent or not yet competent.
 - It is done, preferably, in real working situations.
 - It does not take a predetermined period of time, it is a process rather than a particular moment.
 - It is not subject to the completion of a specific training action.
 - It includes the recognition of acquired competencies as a result of labour experience. This characteristic has been developed in some countries as the so-called “recognition of prior learning”.
 - It is a tool for the orientation of subsequent learning of the worker; as such, it plays an important role in the development of skills and abilities of the ones assessed.
 - It is the basis for the certification of labour competency of workers.

What is the certification process in a standardised system of labour competency?

33. What is the certification process in a standardised system of labour competency?

The assessment and certification process is described in the following chart:



As an example, the process defined by CONOCER, Mexico,¹⁸ is here described:

- The candidate to be assessed is introduced to the certifying body.
- This body carries out a pre-diagnosis of competencies.
- The candidate is referred to an assessment centre.
- An assessor is appointed.
- An assessment plan is drawn up.
- A portfolio of evidences is applied and integrated.
- An assessment judgement is issued.
- There is a positive verdict regarding certification.
- The certification is issued.

The process begins with the introduction of the candidate to the certifying body. There, apart from filling in the request form, a pre-diagnosis of competency is carried out in order to determine:

- The competency status with respect to the unit or to the qualification to be certified.
- The chances of success of the candidate to obtain a certificate in such competency.

By analysing the obtained results, the candidate may be referred to an assessment process in a recognised assessment centre or, if that fails, he may be encouraged to begin a training process in order to strengthen his competencies in the areas he is not well acquainted with.

After the pre-diagnosis, the certifying body appoints an assessor who agrees on the appropriate assessment plan with the candidate. Here, the assessment strategy is established, thus ensuring the transparency of the process. After that, the assessment plan is executed by applying the corresponding instruments to collect evidence of performance and of knowledge of the competency being assessed.

The candidate may gather registers of evidence of performance in different stages of his experience with respect to a labour qualification and

¹⁸ CONOCER, *Reforma estructural de la formación profesional y la capacitación*, Powerpoint presentation, 2000. For more information see: www.conocer.org.mx

present the assessor with such documents included in a “portfolio of evidences”. In this way, the assessor will have a complete collection of verification instruments of the evidences in order to compare them with the details of the competency standard and thus pass his judgement: competent or not yet competent.

In the case of a “not yet competent” result, the units or elements in which the worker was not competent are carefully explained. The assessor must prepare a report for internal verification describing the process and including the results of the assessment.

After that, a group made up by people with enough expertise in the area of competency to be certified, indicates, based on the process, if the candidate will be certified or not. Finally, after the verdict, a labour competency certificate is drawn up and issued.

A “competent” result in the assessment allows the candidate to access certification. But, apart from what is expressed in the certificate, assessment enables individuals to have a comparative profile of their situation with respect to a technical labour competency standard. This information is very useful to decide which training programmes he should attend.

34. How is quality assured in a certification system?

34

How is quality assured in a certification system?

The certification process requires total transparency. Therefore, it is supported by quality assurance mechanisms oriented to ensure that the procedures used for certification are carried out in compliance with administrative and technical-methodological guidelines devised for such purpose.¹⁹

Both the certifying body and the assessment centre have quality assurance systems. The assessment centre has to guarantee the existence of internal verification mechanisms in order to make sure that the assessment is carried out according to the established procedures and guidelines and therefore obtain impartial, transparent and objective results.

The assessment centre²⁰ must have an internal verifier in order to check the consistency of the procedures that are being used, give advice to assessors about the assessment process and create the necessary conditions to handle the information related to assessments.

A certifying body is in charge of external verification of the assessment centre. In order to do this, it uses information from internal verification and it also checks the assessment practices used, it provides consultancy to assessors and keeps registers of performed assessments. In this relationship, the feedback that the certifying body gives to the assessment centre is fundamental.

The internal verifier of assessment centres must control:

- Assessment practices.
- Assessment plans.
- Portfolios of evidence.

The external verifier's role involves:

- Producing a diagnosis of the assessment centre.
- Producing and implementing an external verification.

¹⁹ CONOCER, op. cit

²⁰ Although we talk about assessment centre, standards also allow the recognition of independent assessors.

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- Producing a report on “non-conformances”.

If non-conformances are found during the verification process, the certifying body will give consultancy services and support to the assessment centre with the purpose of discovering and neutralising the causes of this situation.

In Mexico, people who use this assessment are certified by a technical standard of labour competency, this implies a quality stamp in their performance.

E. Competency-based training

35

**What is
a national
training system?**

35. What is a national training system?

The answer should be divided into two parts: the first one offers a conceptual view of “training system” and the second one refers to competency-based training.

The concept of: “system”

The term system is often used in different areas such as that of vocational training. The most common way is through the promotion of institutional structures to which we refer to as “systems”.

The first reference we should look at when creating this kind of organisation is the theory of systems, according to which the effect obtained by means of the interaction among structured parts of a system implies that the whole is greater

According to the theory of systems, organisations are structures made up by components (sub-systems) with specialised duties and which work integrated in a harmonious way. This approach offers the grounds to explain the success or failure of an organisation due to, for instance, an inadequate interaction between parts.

In accordance with this theory, an organisation is a social system in charge of fulfilling a particular purpose. In order to do this, the organisation has several specialised bodies which are “systemically” integrated and which make up a collection capable of achieving better results than the ones that would be obtained by working separately.

than the simple total number of parts. This effect is known as the holistic property or synergy.

For the supporters of this theory, systems are living things, machines, and in general any arrangement that complies with the above mentioned result known as holism or synergy.

During the 60s, the so-called Theory of systems was widely used in the field of theories of organisation. The theories about how organisations work were originated when Taylor and Fayol attempted to explain the fundamental principles that regulated business organisations and led them to a higher productivity thus creating the so-called Scientific Management.

In fact, a system represents a visible characteristic of how organisations work rather than a substantial concept. A systemic organisation is perfectly articulated; the antithesis of a hierarchical and segmented organisation where communications are slow and the structure is rigid. An organisation may be understood and managed as a system but creating a “system” in order to substitute it for an organisation is conceptually mistaken.

A national training system

A vocational training system is an organisational arrangement in which several actors are combined with training offers which are coordinated as to their relevance, contents, level and quality; in such a way, as a whole, they achieve a greater effect in the development of labour abilities of workers than they would if they acted separately. We refer to a standardised system when the system agrees with the use of labour competency standards in order to set the grounds for the drawing up of programmes, training, assessment and certification.

Training systems do not necessarily imply the creation of new institutions; in fact, it represents a mechanism which joins, articulates and regulates the multiple offers and levels of quality that exist.

In this case, the State plays a fundamental role by becoming a promoter and facilitator of the rules of the game for the system and reserving the power for the definition of policies and guidelines before actually taking part in the implementation of actions. One of the main objectives of public administration is ensuring that the training market works adequately.¹

¹ Hassan, Abrar, *Evolución de los mercados de trabajo y la política de educación y formación*, CEDEFOP, in Revista de Formación Profesional, 1994.

It is possible to distinguish three levels within a training system. The political level, represented by a management body; the executive level, made up by sectoral body representatives of production and services; and an operational level constituted by training institutions, certifying bodies and assessment centres.

A vocational training system needs a **management level** in charge of setting policies and defining scopes, priorities and resources allocation. This management level is usually a participation scenario in which workers, employers and the government establish the “rules of the game” which are later approved by legal standards. The management board establishes how the system is made up and the officers are in charge of training, assessing and certifying. The participation of the State is really desirable since it is an excellent opportunity to regulate aspects such as access, fairness, quality and transparency.

Its tasks are oriented to the creation of conditions and general rules regarding how the system works. The main prevailing objective should be improving competitiveness by training workers. This level usually becomes a Board of Directors with representatives from entrepreneurs, workers and the government.

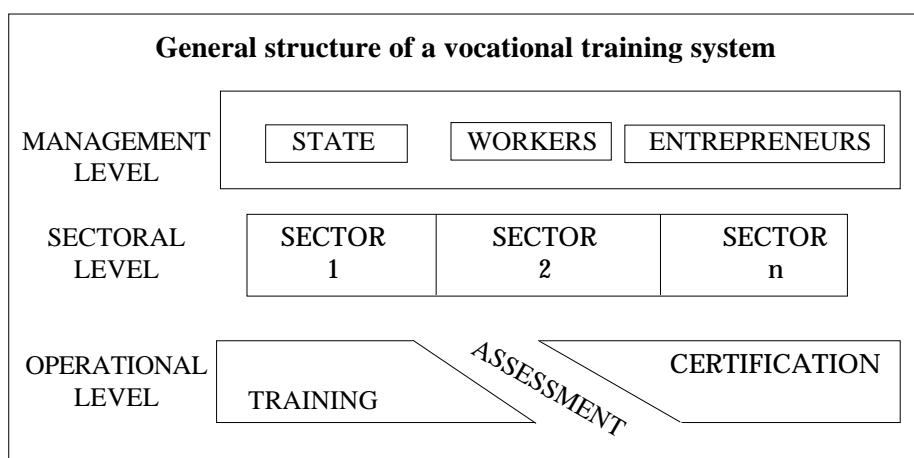
It is advisable that the management level is made up by the highest representatives from entrepreneurs (associations or chambers), workers (trade unions) and the government (ministries). This guarantees that it will still be oriented towards the creation of policy frameworks and consensus promotion.

The system also requires a sectoral level which should generally be involved in determining training needs, drawing up occupational descriptions which could later be developed as competency standards and coordinating training actions for a specific economic sector. This level is perfect for the participation of entrepreneurial chambers or associations and sectoral trade unions (for example, leather, footwear, plastic, paper, trade, building and hotel industry, etc.) as it results in a better organisation of the definition of competency, training and certification standards. A tripartite representation is also desirable; in this way, the interaction developed can approach the needs of specific economic sectors and/or particular geographic areas in a better way.

The bodies of the sectoral level define labour competency profiles for the specific occupations of each sector. These profiles become competency standards if they are adopted by common agreement for training, assessment and certification processes; they create a common language among entrepreneurs, workers and training institutions.

Activities for the identification of competencies are carried out under their coordination by means of the already existing systems (Functional Analysis, DACUM, AMOD, SCID). Therefore, they have the advantage of establishing the required competencies directly with the enterprises that belong to the corresponding occupational sector, and thus the standardisation process is developed.

In order to establish competencies in an appropriate way, this sectoral representation guarantees a greater participation of entrepreneurs and workers in occupational analysis and in the definition of training contents.



A third level is in charge of **operations**; three key activities for the system are carried out at this level: training, competency assessment and certification

The operational level has clearly defined inputs which are guaranteed by sectoral bodies, such as: competency standards, efficiency and quality indicators, methodologies of quality accreditation, clear certification criteria and a cost or price system which can be complemented with subsidies that may facilitate the access of groups at risk of exclusion.

The concept of certification is also shaped at the operational level; one of the main decisions in the design of systems refers to what can be certified and what is certified.² In general, training institutions give great importance to the recognition of competencies of workers; and that is in fact the main value given by participants since a clear competency certification system facilitates labour mobility and, therefore, employability.

In fact, there is not a unique and better formula for the organisation of training institutionalities. They all have in common the search for better quality, coverage and relevance; and of course, there are different ways of achieving such ideals. If we look at the institutionalisation carried out in different countries, which are many times taken as stimulating models, it is important to consider that such institutionalities are the result of culturally accepted practices within the educational and training scope.³

It is also important to consider that recent reorganisations and worries about training systems are derived from national diagnoses which have revealed some of the following aspects:

- an increase in training offers of different quality and little coordination among themselves and with national objectives;
- an inappropriate relationship between the training offer and economic needs, expressed in the demand for trained workers;
- a loss or low level of competitiveness of the economy, often expressed in low levels of training and poor productivity performance;
- signs of exhaustion in training systems currently being used.

The orientation towards results of a training system is so crucial that certification should allow and encourage building up mechanisms in order to prove the competencies of workers, no matter how these were acquired. It is therefore possible to include self-learning processes, labour experience as a creator of competencies and flexibility in training actions.

These three levels of a training system are coordinated and work with articulated objectives and plans. Their autonomy is given at an operational level by the joined definition of needs and actions. In any case, they work in environments where the rules and the quality, relevance and improvement of access conditions are known and clearly dealt with. In short, it is a setting where “everybody plays the same notes.”⁴

² In fact, institutional structures will depend on the preferences of each country (for instance, regarding the separation of training from assessment).

³ This part was developed based on: “Cuatro afirmaciones sobre certificación. Todas falsas”, *Cinterfor/ILO’s Bulletin*, N°153, 2002.

⁴ Irigoin, María; Vargas, Fernando, *Competencia Laboral. Manual de conceptos, métodos y aplicaciones en el sector salud*, Montevideo, OPS-Cinterfor/ILO, 2002.

36. How do competency standards relate to curriculum design?

The transposition process of occupational descriptions usually included in a competency standard in order to design a training curriculum is one of the areas that should be developed and until very recently they have little methodological references.

Competency standards are obviously fundamental in the drawing up of training curricula. However, the process of curriculum design based on competency standards is by no means a lineal or automatic process.

Among other things, the curriculum design of a particular programme does not need to “provide everything”; it should try to identify what is essential to develop the required competencies.⁵ Some questions give great support to the curriculum design:

What competencies need to be developed? What knowledge should be applied? What skills should the person master? What attitudes should the person show?

A curriculum is usually –and we should say: necessarily– structured in modules. Competency-based training is mainly possible by means of modular organisation of curricula. The first attempts to link **competency units** and **training modules** actually took place in curriculum design. In general, this is the

By explicit curriculum we mean a deliberate group of learning opportunities offered to a person or a group of persons for a particular development. The hidden curriculum (implicit) is made up by the institutional atmosphere, the management style of the educational centre, human relationships.

Irigoin; Vargas (2002).

first attempt of transposition that seems to be useful to develop, although experience shows that a competency unit may produce one or many modules. In any case, like in the competencies analysis, the term competency unit implies a meaningful labour result. In curriculum design, the module should make sense on its own and have the ability to be structured in association with others when building up a particular curriculum trail.

The term *module* aims at flexibility by means of the ability to combine one element with another, and at the same time maintain the independence by which it may exist on its own.

Irigoin (2002).

In general, all the components of a competency standard contribute with valuable information for the curriculum design. Although it is not possible to think of a direct link between competency units and modules or between competency elements and learning objectives, it is feasible, through a sensible analysis, to achieve training curricula taking into account the conditions of competency standards.

An aspect which requires special attention is that referred to the shaping up of attitudes and personal abilities such as the initiative, the willingness for cooperation, the creation of a positive working atmosphere, creativeness and problem-solving. These attitudes are usually created more by means of the educational strategies used than with the contents themselves. Remember the concept of hidden curriculum; it is very unlikely that the initiative ability is developed if no questions are asked, no problems are raised and if team work and the search for alternatives to different situations are not promoted throughout the training process.

The key issues underlying the creation of personal competencies are: pleasant and educational atmospheres, qualified and motivated teachers, problem-solving-based learning, the use of several pedagogical means and training techniques.

Description of some methodologies of curriculum design

Several methodologies will now be described, for instance those used by INEM, SENA, CONALEP, SENAI and finally the labour competencies programme which is being drawn up in Argentina.

According to the model of occupational vocational training from **INEM, Spain**,⁶ this process is called “derivation of training contents based on vocational profiles”. The vocational profile has been defined by inputs such as: occupational analysis, an occupational future revision which ends up defining vocational areas and great groups of occupations related to a process or a productive activity with vocational contents in common.

Besides, for each occupation, a vocational profile is described by defining the occupation, the general competency for the occupation, its competency units, its vocational accomplishments (elements of competency), execution criteria and vocational abilities. These aspects are similar to the ones used by the English and Mexican system.

Based on this vocational profile, training contents are drawn up by establishing the necessary theoretical and practical professional knowledge for a competent performance of units. In order to do this, the unit of competency is taken as the grounds for the analysis and the following questions are answered.

What does the worker need to **know** in order to establish the theoretical knowledge?

What does the worker need to **know how to do** in order to establish the practical knowledge?

How does the worker need to **know how to be and act** in order to specify the required attitudes and behaviours?

After that, training contents are structured in professional modules. In general, the relationship created between the module and the competency unit is such that one or more professional modules can correspond to a unit.

⁶ INEM, *Metodología para la ordenación de la Formación Profesional Ocupacional*. Madrid, 1995.

INEM. Professional module definition

It is the set of professional knowledge that when educationally structured:

- respond to an important stage in the working process;
- represent a major part of the learning process;
- are the basic units for assessment.

A professional module has got:

- a general objective;
- specific objectives;
- training contents for each of the specific objective.

Finally, the training pathways are established: a sequence of modules educationally organised, aiming to train for the performance of an occupation.

The experience of curricular transposition in Mexico can be shown by means of the proposal brought forward by **Colegio Nacional de Educación Profesional Técnica (CONALEP)** which drew up a method for the elaboration of training courses based on competency standards.⁷

The method was the result of a thorough analysis of other international experiences and several educational approaches. After establishing and comparing the needs to provide training based on real demands, and identifying and analysing the current labour competency standard for a particular occupational area, the method suggests outlining training modules according to competency units.

The general objective of the course can be defined by bringing it into line with the competency unit or even with elements of competency; this will depend on the level at which it is defined. Therefore, the objectives of the course are similar to the contents described in the corresponding competency unit.

Along the same lines, elements of competency are used as points of reference in order to establish the modules. The specific objectives of the course, the contents and the learning results are settled based on the analysis of the

⁷ CONOCER, *Análisis ocupacional y funcional del trabajo*, Madrid, IBERFOP-OEI, 1998.

evidence of performance, performance criteria, the necessary knowledge and the field of application.

The curriculum design carried out by CONALEP can be described in the following steps:

- Definition of training needs of the production and service sector.
- Verification of the needs regarding the offer and training policies of CONALEP.
- Identification and revision of the Labour Competency Technical Standard (LCTS).
- Definition of the name of the course.
- Design of general objective.
- Design of contents and definition of modules and/or learning units.
- Definition of particular (or specific) objectives.
- Definition of specific objectives.
- Structuring of assessment criteria.
- Design of a descriptive letter.
- Acquisition or drawing up of educational material.
- Verification and proposal of equipment and/or adaptation.
- Definition of the characteristics of the candidate.
- Definition of the characteristics of the trainer.
- Execution of the training course.
- Assessment practices.
- Feedback process is carried out.

SENA, Colombia, sets the following steps in its Manual to design curricular structures and training modules for the development of competencies.⁸

- Interpret the points of reference for curricular design (units, elements of competency, level of qualification).
- Define an occupational profile (the exit profile of the worker-student).
- Define the curriculum structure. It should be made up by basic modules and by institutional policy, mainstreaming and specific training modules.

SENA considers that each competency unit brings about one training module.

- Define entrance profile.
- Verify technically and methodologically the curriculum structure.
- Select module to be designed within the curriculum structure.
- Draw up the development diagram. It allows to observe the coherence between the working process and the training process.
- Define learning units. Every unit has a beginning and an end, with a complete meaning, since it expresses a sequence which is integrated in all the internal processes.
- Technical and methodological verification of learning units.
- Build up the knowledge chart for each learning unit. Concepts, theories, cognitive and practical procedures, attitudes and values related to the process (know how to do, learn and be).
- Settle learning results for each learning unit.
- Establish training procedure for each learning unit.
- Plan teaching-learning-assessment activities.
- Verify the process technically and methodologically.
- Define contents for teaching-learning-assessing activities.
- Settle assessment criteria.
- Define learning evidences.
- Select assessment techniques and instruments.
- Suggest methodological strategies.
- Define learning environments.
- Select and prescribe teaching materials and educational resources.
- Define training times.
- Define the trainer's profile.
- Verify each training module, both technically and methodologically.
- Present the design products to the Technical Committee of the Centre.
- Approve products.
- Revision and updating.

In 2002, **SENAI, Brazil**, developed a methodology for the elaboration of competency-based curriculum design,⁹ and they were careful to make it different from the curricular design based on occupational profiles. According to SENAI, occupational profiles traditionally describe the tasks assigned to a job position, directly indicating the contents and learning processes. On the other hand, competency-based vocational profiles are focused on the results that the worker must show in a productive activity and it is not attached to a specific professional situation since it considers the ability of transferring from one situation to another. Therefore, the vocational profile must have a forward-looking view, which incorporates a prospective dimension from an educational point of view.¹⁰ In Brazil, the curricular design in vocational education should preferably be in modules, according to the legal regulations of vocational education.¹¹

Curriculum design consists in understanding the training offer which should foster the development of competencies that make up a vocational profile. It has to do with decoding information from the labour world into the educational world by pedagogically translating the competencies of the vocational profile.
SENAI, 2002.

The design is elaborated based on the vocational profile established by the participation of a Sectoral Technical Committee and by means of a Functional Analysis methodology. The vocational profile is the description of the accomplishments that a worker should be able to obtain and it is integrated by the required competency units and by the working context.

The methodology used in order to develop a curricular design covers the following stages:

- Analysis of a vocational qualification profile: in its structure, the competency units and types of competencies (basic, specific and management) covered by it. This provides important information regarding the number and types of modules to be suggested for design as well as the definition of curricular units.
- Definition of the modules that would be part of the training offer: Considering two types of modules: basic and specific. The basic module has no

⁹ SENAI, *Metodologia de Elaboração de Desenho Curricular Baseado em Competências*, Brasília, 2002.

¹⁰ SENAI, op. cit.

¹¹ Federal Decree 2.208/97 that regulates vocational education.

final effects regarding labour insertion, it aims to develop basic competencies –technical and scientific foundations– and therefore it is a prerequisite for specific modules. Specific modules are defined according to the job opportunities that cater for the vocational profile. These job opportunities make such modules likely to have a final effect according to the occupational opportunity it may be.

- Definition of curricular units regarding modules. They are pedagogical units which build up the curriculum; they are made up by coherent and meaningful sets of knowledge, skills and vocational attitudes; they are independent in terms of training and assessment throughout the learning process. Curricular units of specific modules are suggested based on competency units, taking into account specific and management competencies. Every competency unit is associated with one or more than one curricular units according to their degree of complexity. It is suggested, that if possible, the name of each curricular unit should be associated with the name of competency unit.
- Internal organisation of curricular units: It covers the definition of a) educational objectives, which are described by a verb, as well as the contents of each objective. Both general and specific educational objectives cater for the structure of vocational profile in competency units and elements of competency, respectively; b) assessment criteria, which determine the boundaries for the verification of the scope of the objectives and which are defined according to the learning process dynamics and the performance criteria that are part of the vocational profile; c) training contents of curricular units, in which it is important to formulate educational strategies that may lead to the development of management competencies; d) educational methodologies and strategies to be adopted which might include modalities such as distance-learning, in-company training, alternation and one-to-one learning methodologies; e) teaching resources; f) educational environments; g) equipment, machines, tools and instruments; and h) timetables.
- Organisation of the training schedule: that is, the sequence of development suggested by the set of modules related to a vocational qualification, which, in an educational order, train people to apply a particular qualification. The curricular units can be taken separately and, if necessary, the schedule must define its relationship and sequence.
- Elaboration of the course plan, which includes the foundations and objectives, entrance requirements, exit profile, curricular organisation, valida-

tion criteria of experience-acquired knowledge, assessment criteria of the course and description of the certification offered.

- Quality control: It is done in the long-term, it consists in guaranteeing that each stage is developed according to the methodology. The curricular design is presented before the Sectoral Technical Committee for them to study it and make any remarks.

The **Programa de Formación y Certificación de Competencias Laborales in Argentina**¹² (Training and Labour Competencies Certification Programme of Argentina) elaborated a methodology of curricular design; its objective was developing the abilities that allow for a competent performance at work. The curriculum design includes four components:

1. A reference framework made up by the description of characteristics of the productive context and the professional role as well as the theoretical definitions of the authors regarding the design.
2. The integrating abilities that are developed throughout the training process, that is “the training intention” of the corresponding curriculum design. These are the basis for assessment and accreditation of learning.
3. The curriculum structure, set in modules.
4. The course load for each module and the complete curriculum.

Competency-based curriculum design is by definition a modular design; this establishes the necessary flexibility to allow progressive learning, to admit the recognition of acquired competencies in every-day practices and to facilitate the mobility within a continuing training.

This experience regards the module as an autonomous unit which is meaningful on its own and is articulated with the other modules that are part of the design. Training objectives of each module are related to the units and elements of competency and these can be analysed separately.

¹² The programme was financed by IADB/MIF and covered experiences from the following sectors: metal, food, motor vehicle and printing industry.

37. What are the challenges posed by labour competencies to vocational training?

Unlike the traditionally academicist¹³ orientation that many training programmes may have, competency-based training programmes should have the following characteristics:

- Approach labour performance and not course contents.
- Improve the importance of what is learnt.
- Avoid traditional division of academicist programmes.
- Facilitate the integration of contents applicable to work.
- Generate learning applicable to complex situations.
- Foster individuals' autonomy.
- Change teachers' role into a learning facilitator mode.

Mertens¹⁴ mentioned some of the characteristics proposed for competency-based training programmes:

- Carefully identified, verified and well-known competencies.
- Training oriented to the development of each competency and an individual assessment for each competency.
- Assessment considers the knowledge, attitudes and performance as main sources of evidence.
- Students progress at their own pace along the programme.
- Training is as individualised as possible.
- There is a strong emphasis on results.
- It requires workers' participation in the elaboration of learning strategies.
- Learning experiences are oriented by continuous feedback.

What are the challenges posed by labour competencies to vocational training?

¹³ It refers to the orientation that focuses on contents of theory or technical subjects without articulating these and without considering its application in the labour world.

¹⁴ Mertens, Leonard, *Competencia Laboral: Sistemas, surgimiento y modelos*, Montevideo, Cinterfor/ILO, 1997.

For instance, SENAI believes that there is a need to change from the qualification approach, which implies orderly and systematically imparting skills, manual abilities and applied knowledge for the performance of prescribed tasks at specific job positions, to a broader approach which promotes competency and favours versatility.

In Chile,¹⁵ within the framework of the Chile Califica Programme a team from the Ministry of Education elaborated a guide for the design of schedules within the scope of technical secondary education. Here, the vocational profile, the information which exemplifies employment dynamics as well as the productive development trends of each sector are considered as inputs of curriculum design. The methodology is modular in order to facilitate the integration of different components of competency (knowledge, skills and attitudes) and to foster the curricular articulation with other training levels and methods.

The final objective of curriculum design is to reach a particular exit profile understood as the set of abilities that a graduate should hold when completing a plan of studies that may allow him to obtain a degree (of middle or superior level) identified by means of required competencies.

In short, the generation of competencies by training programmes demands changing their educational strategies, their curricular approaches and the traditional role given to the teacher and the student; it implies the use of a great variety of learning materials combined with the orientation of learning towards problem solving rather than to the repetition of contents.

Traditional means of educational management, based on a group as a unit and as the grounds for the planning of actions and courses, are being challenged so that they allow an individual management of the advances accomplished by students and their easy re-entrance into programmes that should be modular and open.

Competency-based training implies that the orientation of programmes aims at the development of abilities which may be applicable to a wide range of labour situations involved in the environment of an occupation. The modular aspect of this kind of training gives the chance to manage it with a greater flexibility, it allows for the recognition of experience and the training in modules of immediate application at work which, since they are interconnected, may facilitate the progress of a worker in completing a training pathway.

¹⁵ Chile Califica, *Diseño de itinerarios de formación técnica. Documento de Trabajo*, Santiago, 2004.

F. Competency-based human resources management

38

**How is the
concept of labour
competency
applied to human
resources
management?**

38. How is the concept of labour competency applied to human resources management?

Apart from the experiences of labour competencies applied to vocational training, there is another possibility of application of this approach: human resources management.

Many enterprises in the United States, Europe and lately in Latin America, have incorporated competency-based human resources management as a tool to improve productivity and to foster a positive atmosphere in the relationships with their collaborators. These efforts are justified by the attempts of the organisation to improve productivity and competitiveness levels by means of knowledge and learning ability. Thus, it becomes evident that there is tendency to revalue human contributions to organisational competitiveness.

This application of the competencies approach comprises the traditional areas of human talent management at the organisation: selection, remuneration, training, assessment and promotion. Several experiences of applications of standardised competency systems have taken place in England, Ireland, Scotland and Australia. These experiences are framed within national systems of training and certification. In these cases, the main characteristic is their national projection and the articulation of training institutions with the needs of enterprises through training based on competency standards.

In addition, several enterprises motivated by the pressures of change and reorganisation of work have set about imple-

menting competency-based systems of human resources management in order to maintain their competitiveness.

The implementation of these systems goes through the process of defining the key competencies for the organisation. Then they are discussed with the participation of workers, but not necessarily all of them, and then applied to selection, determination of training needs, performance assessment and personnel remuneration and promotion.

The experiences that confirm this answer are based on applications of the behaviourist approach on labour competency, according to which the competencies shown by the best workers are determined and then taken as a reference of best performance.

Below there are some definitions of labour competency that are typically based on behaviour and best performance:

- A competency is an ability that may be subject to measurement and that is necessary to do a job efficiently, that is, to produce the results expected by the organisation. Competency analysis has the aim of identifying the knowledge, skills, abilities and enabling behaviours that employees are supposed to demonstrate for the organisation to fulfil its goals and objectives. To have a competency, it may just be necessary one type of knowledge, skill, ability or behaviour, or it may require a combination of all of them.¹
- An underlying characteristic of the individual, which is causally related to an effective or high-level performance in a working situation and defined by a certain criterion.²
- Groups of knowledge, abilities, aptitudes and behaviours that a person possesses and that enable him to carry out an activity successfully.³
- A skill or a personal attribute of an individual's conduct, which may be defined as a characteristic of his behaviour, and, according to which the task-oriented behaviour may be classified in a logical and reliable manner.⁴

¹ Marelli, Anne, *Introducción al análisis y desarrollo de modelos de competencias*, 2000.

² Spencer, L. M.; Spencer, S. M.; *Competency at Work*, New York, John Wiley and Sons, 1993.

³ Rodríguez T., Nelson; Feliú S., Pedro, *Curso Básico de Psicometría*.

⁴ Ansorena Cao, Álvaro, *15 casos para la Selección de Personal con Éxito*, Barcelona, Paidós Empresa, 1996.

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- Group of knowledge, abilities, skills and attitudes in terms of observable behaviour, required to perform in the assigned roles in the processes of the organisation (Electricidad de Caracas).
 - Measurable and observable knowledge, abilities and skills, as well as characteristics associated with an excellent performance at work and the achievement of results (Buck Consultants, Inc.).
 - Group of knowledge, abilities, skills, attitudes and values whose application at work is translated into a high-level performance, which contributes to the achievement of the key objectives of the business (Petróleos de Venezuela).

Competency-based human resources management has the following characteristics:

Enterprise-focused: One of the main features of these experiences is not placing the emphasis on the problem of training as a national problem; such experiences simply take place at an enterprise level. The premise that facilitates this methodological attitude derives from considering that the competencies of one occupation may be different in two different organisations. The organisational philosophy, of manufacturing and customer service, varies from enterprise to enterprise. In this case, each organisation needs to find its key competencies so that its collaborators can achieve the expected results.⁵

The best ones as reference: Behaviourist competency-based management models identify the best workers, i.e. those who are obtaining the best results. From there the profile of competencies is derived, based on the assumption that if the best performance becomes a standard, then the whole organisation will improve its productivity.

Designed competencies, rather than consulted ones: Some of the competencies that are required by the organisation cannot be obtained by consulting workers. This is not enough; it is necessary that the management office defines the types of competencies expected from their collaborators in order to achieve their goals and that those competencies are included within the standards so as to facilitate knowledge and training. With this idea, workers are not the only element to define competencies; it is necessary to consult them but that is not enough.

⁵ Cubeiro, Juan Carlos, *Cómo sacarle fruto a la gestión por competencias*, Training and Development Digest, 1998.

39. How are key competencies defined by behaviourist human resources management?

Behaviour-oriented definitions of key competencies tend to concentrate on the success factors of performance. Some examples are provided below:

“The initial objective was to determine the critical or key competencies, understanding as such the knowledge, attitudes, skills, abilities, values, behaviour and personal attributes that are more directly related (in a causal way) with the successful performance of individuals at work and in their functions and responsibilities” (Arión Consultores).⁶

“Personal key characteristics that promote and maintain efficiency at a high-performance enterprise. They define what the person is and they are reflected in everything the person does. They are personal characteristics that go from deep and profound aspects of the individual to quite easily observable and modifiable features” (Electricidad de Caracas).

“Personal characteristics that make a difference between correct performance and excellent performance in a specific position, enterprise or culture. They are certain ways of doing things; they are the behaviours and skills that people show when carrying out work with excellence” (Mavesa).

The above definitions focus on the personal characteristics that define high performance and they are strongly linked to McClelland's remarks. He says that in each job some people perform much more efficiently than others because they use different ways and behaviours to carry it out. Therefore, the best way to identify the competencies that lead to high performance is to observe the most successful workers.⁷

When defining the competencies model for the organisation it is fundamental to find those behaviours that

⁶ Muñoz, Julián, *Implantación de un sistema de selección por competencias*, Training and Development Digest, May 1998.

⁷ Spencer, Lyle; McClelland, David, *Competency Assessment Methods: History and State of the Art*, 1984.

best contribute to the achievement of objectives. The steps that are usually followed when setting up the model are:

- Considering the strategic objectives of the enterprise.
- Analysing the capacity of the organisation and its resources.
- Studying the economic and financial feasibility of the model.
- Devising and adopting the principles and structure of Human Talent Management.
- Designing their own competencies model.
- Applying competencies profiles in the different stages of Human Talent Management.

A delicate point when implementing the competencies model lies precisely in their identification and definition. To that effect, enterprises have a number of possibilities; there are methodologies that foster workers' participation in the identification of competencies and those which offer catalogues and dictionaries to entrepreneurial executive bodies.

Some authors defend the idea that competencies should be defined by the executive body of the organisation.⁸ Others consider that when facing the competencies approach based on the best performance (behaviourist) with the approach based on labour functions and results (functionalist), two different concepts are being discussed: the first one focuses on the person's competencies and qualities; the second one, on the requirements of the occupation.⁹ Others, on the contrary, build up the concept of competency from two large groups: personal competencies, associated with attitudes and behaviour and, on the other side, technical competencies, associated with the knowledge, abilities and skills involved in labour performance.¹⁰

From the point of view of a global analysis, there are some important differences between the approach on training and that of competency-based human resources management. Basically, competency-based training takes into account results and the application of knowledge, skills and attitudes to achieve them. To the behaviourist approach, knowledge and behaviour seem to be enough to achieve a "high-level" performance.¹¹

⁸ Cubeiro, Juan Carlos, op. cit.

⁹ Moloney, Karen, *¿Es suficiente con las competencias?*, Training and Development Digest, 1998.

¹⁰ Buck Consultants, *Competency-Based Performance Management*, Washington D.C., 1998.

¹¹ This aspect is treated with more depth in: Vargas, F., *Competencias en la formación y competencias en la gestión del talento humano: Converencias y desafíos*, Cinterfor/ILO, 2000.

40. How does the competencies approach contribute to human resources selection?

Competency-based systems of human resources management facilitate the execution of the functions related to talent management, among them the selection. Generally, the process begins with the identification of competencies and continues with the candidate's assessment against such competencies. In this way, the candidate's competency for performing the desired occupation can be established.

Thus, the selection process is founded in competencies that are defined by the organisation, either through the application of competency standards established by Functional Analysis (functionalism) or through the definition of the key competencies required (behaviourism).

Competencies facilitate the creation of a criteria framework that may be taken into account when carrying out the selection process, but they may introduce some variations to the traditional characteristics of the process.

These variations may be summarised in: the change of emphasis in the search for a candidate for a position, a candidate for the organisation; consider the difference between personal and technical competencies; introduce simulation exercises to detect whether the candidates have certain competencies or not.

A candidate for a position or a candidate for the organisation? Clearly, this dilemma is solved in favour of the organisation. What the organisation needs is someone who has a good reservoir of competencies required for different labour situations taking place at the organisation. Then, there appear demands such as "what the enterprise needs from its people" which perfectly differentiate the candidates' profile beyond their technical ability.

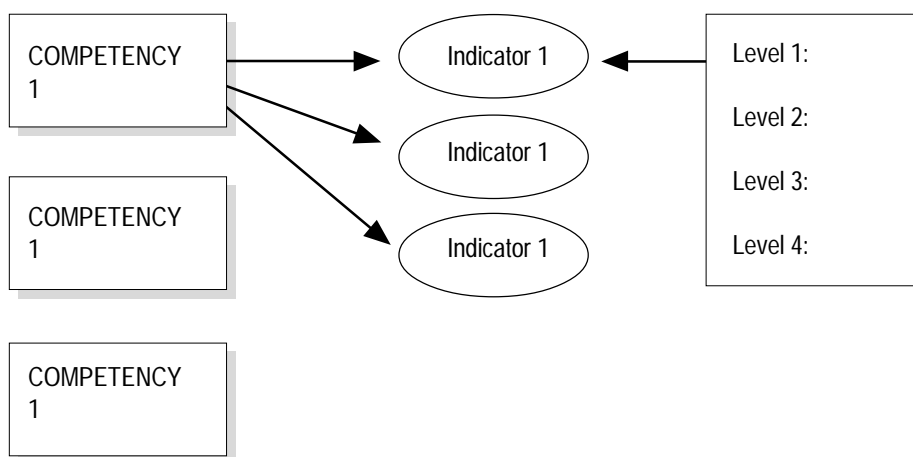
Many organisations create their own model of key competencies and, with that as a reference, they choose their collaborators. Usually, the "model" of competencies reaches the definition of the expected levels and behaviours in a group of not more than 6 or 7 competencies. This group of competen-

cies also includes the description of related behaviours, as well as the levels of competency to be achieved by each behaviour.

This group of competencies are disaggregated into a more detailed and specific group called subcompetencies. At this point, subcompetencies are often expressed at different levels, to which there corresponds a behaviour indicator.

The graph provides an example of this structure:

Typical structure of an enterprise-level model of competencies



Several behaviour indicators may be associated to a competency such as “working with information”. Some examples of those behaviours are:

- Identifying and using all sources of information appropriately.
- Identifying precisely the type and form of the information required.
- Obtaining relevant information and keeping the appropriate formats.

The levels of functionality¹² or levels of depth or complexity seek to describe the degree of competency in terms of the scope of performance and the possibility to include activities such as planning and decisions concerning resources or the work of other people.

¹² Term used by Anne Marelli, 2000.

For example, for the indicator “obtaining relevant information and keeping the appropriate formats” several levels of functionality could be considered:

Level 1: Handling of general and free-access information and registration in computer systems.

Level 2: Handling of information with a certain degree of specialisation or that is occasionally restricted, registration according to priorities and filling in different computer applications.

Level 3: Handling of results and confidential information, decision on the types of files for registration and occasional writing of reports on performance.

Level 4: Handling of confidential information, keeping that information on restricted-access files and destruction of paper copies.

Competencies possessed and competencies to be developed

Many competency-based management models establish a distinction between competencies that individuals already possess –which cannot generally be modified– and competencies that can be acquired and developed.

The former are related to their perceptions, values and preferences, their behaviours and reactions, their involvement with others, their attitudes, etc. Some models of competencies imply that there is little or no margin at all for the alteration of such features. Either they are possessed and coincide with the enterprise’s requirements or not. This group is formed by competencies such as: “achievement desire, team work, quality concern, perseverance before challenges, customer orientation, self-learning”.

This group of competencies are detected by carrying out simulated exercises of critical situations. The person is faced with a fictitious event, already thought of, and his reactions are examined to determine whether he displays the desired competencies.

The latter –the ones that may be developed– are technical and operational competencies. These competencies represent the knowledge, abilities and skills applied to the occupation. For example: use of tools, reading of instruments, ability to interpret graphic information, software management, etc.

Usually, these competencies are assessed through the application of knowledge tests and/or exercises of practical application at work.

In any case, to carry out a competency-based selection process, the enterprise should make explicit their competency-based management model, which is related to the directors' will and which has a clear specification of competencies that, in this case, become the language shared by the management office and the collaborators and, in sum, the guide of the selection process and the human talent management.

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