

8.2 ISO/IEC 20000: The compass to guide your path in the best practice universe

ISO/IEC 20000 is the first international standard for IT service management. Worldwide adoption is increasing, and information about implementations is in progress. Alejandro Debenedet and Luis Miguel Rosa Nieto provide an overview of the standard in past, present and future and show us how to approach an ISO/IEC 20000 implementation project.

INTRODUCTION

ISO/IEC 20000 is the international standard designed to promote a management model that enables organizations providing IT-based services to obtain adequate levels of quality. ISO/IEC 20000 is establishing itself more and more firmly as the compass that allows us to guide ourselves through the complex network of models and proposals related to IT service management. The fact that the guide is an international standard means that it is a point of anchorage from which we can evaluate other models and reference the value they bring to an organization.

This state of affairs prompts us to share, with the community, the current situation of ISO/IEC 20000, a general analysis of how it is being implemented in organizations, and the motives behind certifying management systems and professionals.

ISO/IEC 20000 AS A GUIDE FOR NAVIGATING THE VARIOUS FRAMEWORKS AVAILABLE

Currently, we find ourselves at the dawn of the age of best practices, frameworks and standards for IT service management, an industry that began only sixty years ago. Compared to other professions such as medicine, law and academia, IT is part of our modern age and has been developing in much the same way as a growing child, taking information concepts and experience from a variety of sources, haphazardly and without verifying its accuracy, yet hoping that the desired outcomes will be obtained. For these reasons, when best practices such as ITIL[®], or the later BS 15000, appeared on the scene in the late 1980s, many organizations adopted them in the hope that these guidelines would finally bring order to chaos, bring IT into the realm of business, and make IT services more attainable, controllable, justifiable and cost effective.

It was in this context that the development of ISO/IEC 20000 began. While it originated as a “fast-track” version of BS15000 - in other words, the adoption by ISO and IEC¹ of the British Standards with minimal changes, but endowing the standard with the required international and regulatory seal of approval - ISO/IEC 20000 developed from non-existent to a “promise come true” in the field of IT service management. This is why many are beginning to see it as the possible link or connection, between several best practices, frameworks, processes (both public and private) and other standards, as suggested by figure 1. ISO/IEC 20000 is independent from all of these standards, and could be considered a “neutral” framework.

¹ ISO = International Organization for Standardization (ISO); IEC = International Electrotechnical Commission (IEC).

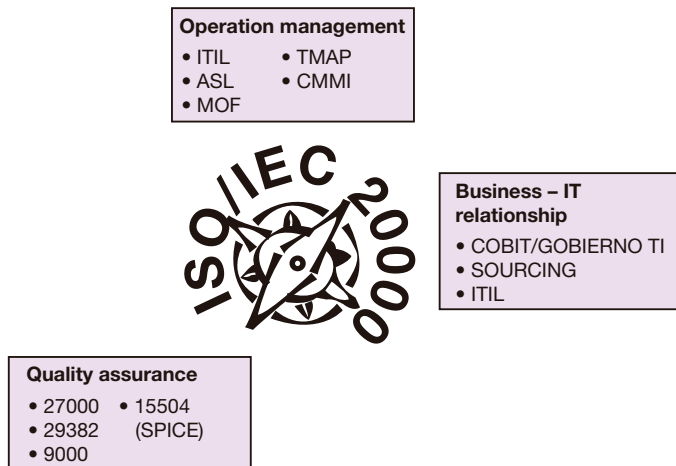


Figure 1 ISO/IEC 20000 has established itself as the guide for navigating the various best practices and frames of reference

ISO/IEC 20000 actually consists of two parts, the first being what must be done (requirements) and the second being what is recommended to be done (code of practice) in order to comply with the standard. Also, if the organization wants to go one step further, it can apply for a compliance audit, which gives the organization the opportunity to obtain the international certification that acknowledges that the organization complies with the standard (see figure 2).

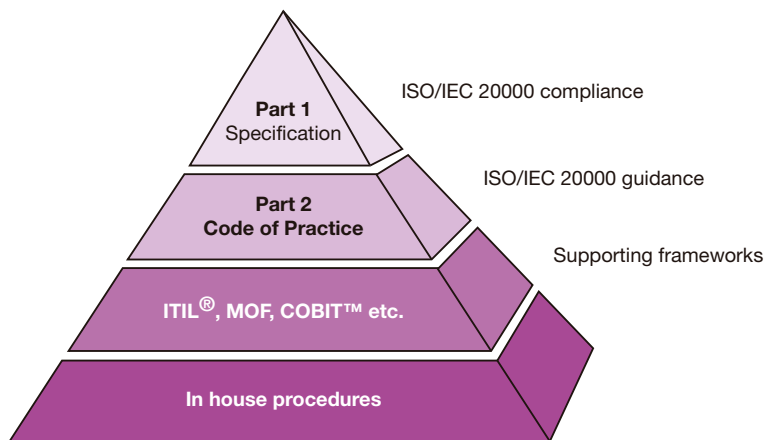


Figure 2 Part 1 and 2 of the ISO/IEC 20000 standards inside the pyramid, as well as the different levels of support

However, reality shows that there are neither defined nor implicit controls between ISO/IEC 20000 and frameworks such as MOF², ITIL, other ISO standards or CMMI³. Each of these frameworks has its own development interest groups. To some extent, the adoption of these models allows the service providers to attain compliance and eventually ISO/IEC 20000

² MOF: Microsoft Operations Framework
³ CMMI: Capability Maturity Model Integration

certification. If, for example, we look at ITIL, it is clear that this set of best practices shares processes with the same denominations as ISO/IEC 20000, although the ISO/IEC standard lists some processes beyond the scope of ITIL. From the perspective of the standard, it should be noted that elements related to information security mentioned in ISO/IEC 20000 are covered in greater detail in ISO/IEC 27001; concepts of software asset management are developed further in ISO/IEC 19770, and, of course, the content related to requirements for management systems and to planning the implementation of service management is covered by ISO/IEC 9000.

Clearly, the application of ISO/IEC 20000 leads to the adoption and adaptation of essential parts of other standards, best practices and frameworks, which can be enhanced when these models are applied directly after the organization has become compliant with ISO/IEC 20000.

ISO/IEC 20000 TODAY

Current statistics show that worldwide interest in the diffusion and adoption of ISO/IEC 20000 by IT service providers is growing constantly and at an unprecedented rate. Despite the fact that data for this standard lacks the depth, and, therefore, possibly the relevance of other standards, certain statistics show signs of a promising future. ISO/IEC 20000 is second only to ISO 9000 in terms of growth; its growth knows no borders, and there are organizations adopting the standard worldwide. Professional certification programs are being developed and implemented internationally, even though they are only available in English. By analyzing the data available, it is worth noting that international acceptance of the standard has taken place gradually:

- Countries that adopted the standard early (and which, therefore, have reached a higher level of maturity):
 - United Kingdom
 - United States
 - The Netherlands
 - Australia
 - Japan
- Countries that have emerged strongly, and with a group of companies that support implementation of the standard and that adopt the standard on both a private and public level:
 - China
 - India
 - Germany
 - Brazil
 - Italy
 - Canada
 - Spain
 - France

The status and international recognition obtained by the standard is supported by ISO. The committee (ISO/IEC JTC1/SC7/WG25) that helped to create and maintain the standard, and which was responsible for its initial disclosure, includes members from the various countries and geographic regions represented by the organization; thereby developing a standard that is truly internationalized and that does not need to be adapted to different cultures, since cultural differences have been taken into consideration since the standard's conception.

THE IMPLEMENTATION OF ISO/IEC 20000 WITHIN ORGANIZATIONS

This section focuses on topics that are related to the implementation of ISO/IEC 20000: organizational impact, roles involved, cultural change, communication and training, project and process approach, and integration with other standards.

Organizational impact

Any effort within an organization that leads to the implementation of a management model will inevitably impact that organization. The scope of this impact depends on the organization's maturity in terms of its management practices, and whether or not there were previous models in place regarding quality and/or IT service management. The fact that an organization had previous models in place, means that transformation of policies, training, and awareness within the organization will not be as deep as if starting from scratch. However, the implementation of an ISO/IEC 20000-compliant management model will entail greater complexity, as the organization is not "starting from scratch" but integrating common management elements with practices already in place. In this context, it is important to list a number of common elements that need to be integrated:

If the organization is relatively mature in terms of the alignment between its information systems management and its IT service management practices:

- To some degree, processes have often already been identified and managed within the organization.
- It is very likely that designated individuals are in charge of the management and operation of the various processes and functions.
- A focus on continuous improvement and the need for management to observe the minimum requirements imposed by the standard must be added to the elements already in place (processes and managers).

If the organization has an ISO 9000-based quality management system in place:

- A solid foundation and awareness of the continuous improvement cycle will already exist, as well as a PDCA process (Plan, Do, Check, Act), which is included in both standards.
- This will facilitate this element of the quality management system, but at the same time, having an ISO 9000-based system means that the activities of each management and improvement cycle must be aligned for the general management of the company and especially for IT.

If the organization has an information security management system in place based on ISO/IEC 17799 or ISO/IEC 27000:

- A notion of continuous improvement, based on Deming's PDCA cycle will exist within the organization, as this cycle is also part of the information security standards, however probably only within a limited section of the company.
- The elements of information security that are included in the ISO/IEC 20000 standard must be much more thoroughly covered by the organization

We can, therefore, conclude that the implementation of an ISO/IEC 20000-based management system will have a degree of impact that is inversely proportional to the maturity level of the organization. In organizations that have no previously implemented management models, including those listed above or other similar management systems, it is expected that the implementation of this standard will have significant impact. In this case, the effort and initiative taken by the organization to facilitate the cultural changes and to raise awareness regarding the IT service management system (QMS awareness) will be all the more worthwhile.

Roles involved

According to ISO/IEC 20000, the implementation of a management process should involve different resources who are responsible for the decisions and tasks within the organization. The RACI matrix is a useful tool for clearly illustrating these resources and their responsibilities as related to the various elements of the management system. This diagram is summarized below.

The RACI matrix

This diagram illustrates the relationships between the activities and the roles carrying out these activities, as well as their degree and type of involvement.

The RACI matrix distinguishes between four types of roles:

- **Responsible**
 - the resource that carries out the task to completion; the Responsible is designated by the Accountable
 - the responsibility may be shared among various individuals
- **Accountable**
 - the resource who is ultimately responsible for the task; however, not the resource who performs the task (normally the role specified as “accountable” is hierarchically superior to the resource who performs the task)
 - there can only be one “A” for each task
 - this resource has the decision-making power for the task (whether to carry out the task or not)
- **Consulted**
 - the resource or role that must be consulted prior to a decision or final action; this role involves two-way communication
- **Informed**
 - the resource who must be informed after an action or decision; this role involves one-way communication (communication to the Informed)

The following diagram shows the different RACI responsibility types for an imaginary process related to maintenance requiring an interruption in service.

- **Responsible:** the technician is in charge of carrying out the task
- **Accountable:** the person who is in charge of change management
- **Consulted:** the client (in charge of the department that is the user or receiver of the service being maintained) must be consulted, so that the chosen time for the service interruption can be approved
- **Informed:** the users (personnel in the client’s department) are informed of the interruption in service

Differences may exist in organizations, depending on their functional and hierarchical distribution and assignments; nevertheless the models of table 2 are applicable to most organizations regardless size (e.g. large corporations, small and medium-sized companies), type (e.g. governmental organizations, private companies, non-profit organizations) and geographic location (e.g. national, multinational).

The participation and tasks of the resources involved in the project change throughout the duration of the project, and, for this reason, we describe their responsibilities according to three well-defined phases:

- decision
- implementation
- daily execution (and maintenance)

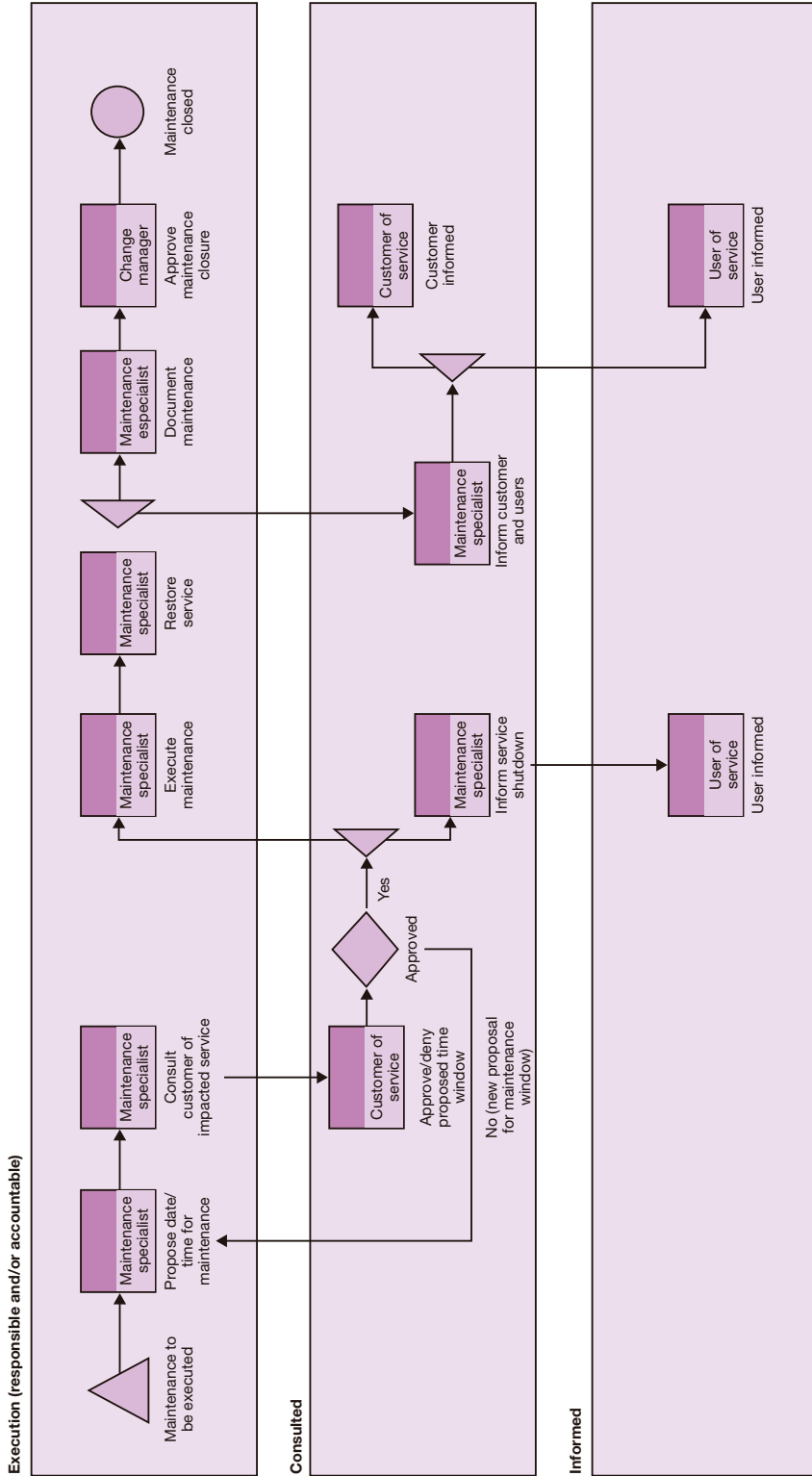


Figure 3 Roles and responsibilities according to RACI in an imaginary workflow for service maintenance

	General management	IT director	ISO/IEC 20000 project manager	Chief quality manager	IT quality manager	IT middle managers	Supervisors and IT process managers	IT personnel and IT specialists	In-house/external consultants	In-house/external auditors
Phase 1: Decision										
Propose the implementation of ISO/IEC 20000	C	A		C	R					
Carry out initial self-assessment		A			R					
Define scope (including need for certification)	C	A	R	C	R	I	I			
Define the impact in the global management system		A		R	R					
Define project planning										
Define budget requirements		A	R		C					
Define project team		A	R		R					
Define requirements for external support										
Decide the implementation of ISO/IEC 20000	A	R		C	R					
Phase 2: Implementation										
Define roles and responsibilities for the daily management system		A	R	I	C	C	C	I	R	
Establish procedures for the IT processes			R	C	A	C	C	C	R	
Establish IT support systems requirements		A	R		R	C	C	C	R	
Define and execute integration with complete management system	C	C	R	A	R	I	I	I	R	
Design the communication/training plan		A	R		C	C	C	I	R	
Execute the communication/training plan			A						R	
Implement the system		A	R	C	R	C	C	I	R	
Carry out initial audit of the system			A							R
Establish improvement program		C	R	C	A	C	C	I	R	
Optional: certify management system		A	R	C	R					R
Phase 3: Daily execution and maintenance										
Daily management aligned with management system		A			R	R	R	R		
Internal audit of the management system (management cycle)		A			R					R
Plan and establish improvement program (management cycle)		A			R	C	C	I		
Execute and monitor improvement program (management cycle)		A			R	C	C	I	R	
Assess improvement program (management cycle) and initiate new one		C		C	A	C	C	I	R	
Optional: external audit of the management system (renewal)		A			R					R

Table 1 RACI responsibility example for ISO/IEC 20000 implementation and operation

As we can see, the most important roles in the various phases are:

- the personnel and specialists of the organization, on whom the success or failure of the project and the daily functioning of the system ultimately depends, despite the fact that such personnel do not have much influence on the organization's decisions (R,A,C); their attitude and motivation are fundamental
- the IT director, as the sponsor, the resource who is ultimately responsible (together with the general management) and the project facilitator
- the IT quality manager, who is responsible for the majority of the tasks, in collaboration with the project manager
- the project manager (a role that can also be assumed by the IT quality manager); the project manager becomes responsible for day-to-day quality management, once the implementation phase of the project is completed
- the project team, which consists of consultants (either internal or external) who are highly knowledgeable with respect to the standard, and experienced at putting the standard into practice
- the auditors (either internal or external) who verify the degree of success of the implementation, based on the results of any audits carried out

Going into greater detail, we review the profiles and functions of the following roles:

Project approach (implementation)

Project manager

- mission: plan and carry out implementation
- profile
 - highly familiar with ISO/IEC 20000 and quality management systems
 - in-depth knowledge of IT Service Management (ITIL, COBIT^{®4}, AS 8015⁵, ISO/IEC 27001)
 - knowledgeable and experienced with regard to project management
- duties and responsibilities
 - obtain and maintain approval from management
 - inform management
 - plan implementation
 - carry out implementation
 - manage resources (internal and/or external)

Consultant

- mission: technical support during project implementation, contribution of knowledge (ISO/IEC 20000) and experience (previous standard implementation projects)
- profile
 - consulting experience
 - knowledge of ISO/IEC 20000
 - knowledge of quality management models and systems in general (ISO 9000) and specifically related to IT service management (ISO/IEC 27.001, AS 8015, ITIL)

⁴ COBIT (Control Objectives for Information and related Technology): an IT management framework created by the Information Systems Audit and Control Association (ISACA), and the IT Governance Institute (ITGI) in 1992

⁵ AS 8015: first standard for corporate governance for ICT, published by Standards Australia in 2003

- duties and responsibilities
 - provide support during implementation
 - perform all the assigned tasks, assigned during planning (support for process development, training, and/or communication, etc.)
 - inform the project director of any problems

Auditor

- mission: determine the level of maturity of the implementation of the standard by comparing the practices being carried out within the organization and their alignment with the requirements set forth in the standard
- profile
 - auditing experience (as a lead auditor)
 - experience as an IT service management specialist
 - consulting experience
 - knowledge of ISO/IEC 20000
 - knowledge of the standards for accreditation of certifiers (ISO 17021, EA 7/03 for information security and ISO 19011 for quality systems auditing)
- duties and responsibilities
 - direct and lead the auditing team
 - carry out the management system audits
 - complete audit reports
 - monitor and evaluate the corrective actions carried out to neutralize any non-conformances detected by the specified deadline (if applicable)

Process approach (operations)

Quality management system director

- mission: guarantee that the quality system is fully implemented and monitor quality system operations and their relationship with other management systems (service management, other quality systems – ISO 9000, ISO/IEC 270001)
- profile
 - management experience in terms of managing people, resources, objectives/goals
 - for other qualifications, the profile of the quality management system director coincides with that of the project manager, although in this case, the QMS director carries out his duties in a different cycle (not a project-based cycle).
- duties and responsibilities
 - lead the operations and improvement cycles for the management system according to PDCA
 - define, negotiate and reach consensus (with other directors) regarding improvement plans for service management
 - implement and verify the efficiency of the plans
 - define and co-ordinate the audit plan (internal audits)
 - represent the organization during external audits (if applicable)

Process managers

- mission: manage the day-to-day operations in his/her area of responsibility in accordance with business parameters and management system requirements.
- profile
 - management experience in terms of managing people, vendors, resources, objectives/goals

- knowledge of the ISO/IEC 20000 standard, especially the requirements and code of practice that fall under his/her responsibility (support, changes, information security, etc.)
- technical knowledge pertaining to his/her area of responsibility
- duties and responsibilities
 - plan the day-to-day operations within his/her area of responsibility (plan)
 - manage the daily operations in his/her area of responsibility (execution and maintenance)
 - develop, implement, and monitor the management indicators within his area of responsibility, providing information on performance within his area of responsibility (check)
 - participate in the improvement cycle, within the management system, implementing the improvements related to his/her area of responsibility (act)

Auditor

- mission: audit the management system and its compliance with the requirements of the standard, in order to provide information on priority areas of improvement
- the profile, duties and responsibilities are the same as those listed in the project approach phase

In this article, certification of the ISO/IEC 20000-based quality management system is described as optional, since it is up to each organization to decide whether or not it is worthwhile to have the implementation of this management system certified. This decision must be included in the scope definition activity, together with the services and/or locations to be covered by this management model. All of these factors will be discussed in greater detail in the section on implementation. The overview of roles and related activities above is included for those organizations who decide to pursue certification of the system.

Cultural change

The focus of a company's management and the way the company operates - whether or not the company strives to improve its commitment to quality services - is very much influenced by culture. Experience tells us that if the efforts to implement a quality management system only focus on the development and implementation of a series of process and support tools, the project will be doomed from the start. This is the reason why it is important to identify the elements of a company affected by this "cultural influence":

- company policy
- the commitment of management (at all levels)
- the will and motivation of all parties involved (stakeholders)

Without understating the importance of the first two elements, the will and motivation of all stakeholders involved is undoubtedly a key element in the day-to-day affairs of an IT service provider. The term "stakeholders" is used in a wide sense here, and includes not only the employees working in the various IT areas, but also all vendors and clients, both external and internal. The commitment of all these parties is certain to result in a positive perception of change. This means that all of the stakeholders' expectations must be met, and, moreover, that all their concerns and objections must be resolved with respect to the upcoming change. Such objections or resistance to change are generally manifestations of "fear" of the unknown, or a lack of confidence concerning the consequences of the new proposal:

- on an individual level (workers)
 - greater volume of work (bureaucratization)

- greater competition
- a need for further knowledge
- for middle and top management
 - greater volume of work (bureaucratization)
 - power lost to any new management positions that the new model may require
 - a lack of confidence concerning the audits and the reviews, and on the interpretation that may be done on its results

Communication and training are the most effective tools for overcoming resistance to change. The next section will demonstrate how both can be used to persuade those in the organization to be in favor of the quality management system for IT services.

Communication and knowledge of management systems (SQM awareness)

As we have seen, the factors that can lead to a non-receptive attitude towards the introduction of an ISO/IEC 20000-based management model in the organization are the result of not knowing the consequences of the decision and of the standard itself.

To overcome this resistance, a communication and training campaign must be undertaken. This campaign must, at least, include communication and training.

Communication

Raise awareness, through all possible means, of the objectives and benefits of the project, not only at the project start, but throughout the entire duration of the project. Some ideas include:

- project kick-off event with a clear, positive message from top management
- electronic publication (email, internet, etc.) of the objectives and goals of the project, as well as a description of the project phases, the results and the responsibilities of each section of the organization throughout the project
- weekly project breakfasts: the project manager can meet with others in the organization to communicate and update employees on the project, and respond to any questions or concerns
- physical or electronic deliverables, for example, a magazine or newsletter on the project; the publication should highlight the progress made so far, the end results of the planning phase, and should provide related news and information about the standard

Training

The campaign must provide all personnel with the necessary ISO/IEC 20000-related knowledge:

- basic knowledge
 - aimed at all levels within the IT organization
 - the objective is to neutralize negativity or resistance towards the project and to raise awareness, not only of concepts, but especially of expected benefits
 - this training can take the form of a training plan or of internal seminars given by qualified personnel
- intermediate knowledge
 - aimed at personnel with management responsibilities within the IT organization
 - the objective is to provide management personnel with sufficient knowledge of the standard, especially knowledge of the sections of the standard that mainly apply to their area of responsibility, in order to facilitate their daily activities and their participation in the implementation of the new management model

- this training can take the form of a training plan, but it must be taken into account that training content should be specialized according to the role of each of the staff members involved
- advanced knowledge (expert)
 - aimed at personnel who are key figures in the organization in terms of implementation and maintenance of the system
 - the objective is to provide the personnel who play major roles in the implementation and maintenance of the system with advanced and in-depth knowledge: IT quality manager, project manager (a role that may be assumed by the IT quality manager), and consultants and auditors for the system
 - must be formulated in a detailed training plan

Implementation

It is possible to distinguish two different phases in a company’s adoption of an ISO/IEC 20000 management system:

1. Project approach: the implementation of an ISO/IEC 20000-based management model within a company must be carefully considered and managed, as a separate project in and of itself.
2. Process approach: the consolidation of the system and its day-to-day use and optimization.

The diagram of figure 4 illustrates these two approaches.

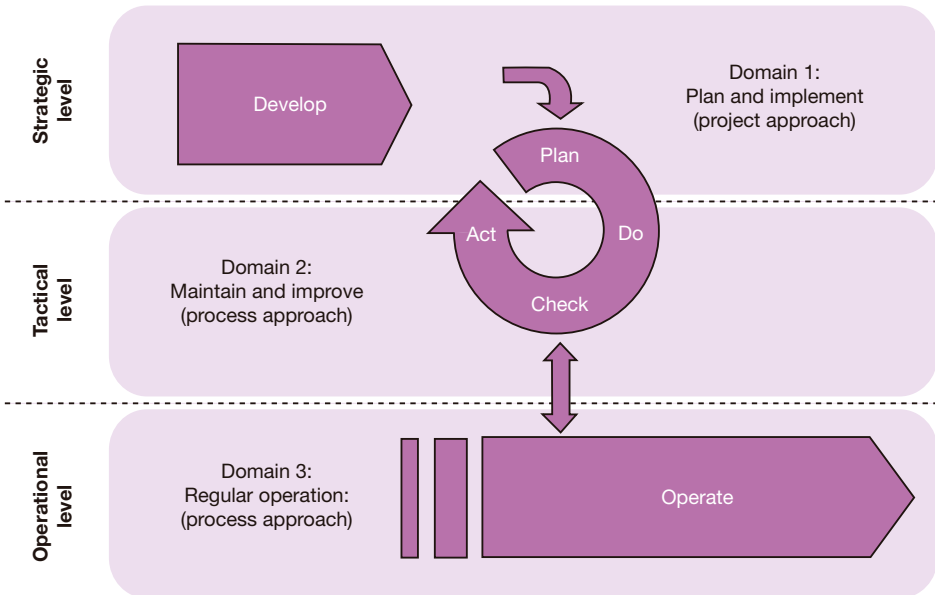


Figure 4 ISO/IEC 20000 implementation and management model

1. Project approach

Although this approach includes activities at all levels (strategic, tactical, operational), the implementation project itself can be considered to be part of the company’s strategy. In

this respect, it is worth pointing out over the particular activities of any project, the specific elements of a management system implementation:

- project focus
 - scope definition (units/departments/sites)
 - intention/lack of intention to pursue certification of the management system (described in section “Compliance and certification”)
 - definition of the communication and training needs
- assessment of the maturity of the IT service management practices within the organization
 - in this way, the company can try to obtain benefits by integrating those aspects of the organization’s practices that are already mature
- planning and establishment of the project phases
- definition of internal and/or external support requirements
- need for support tools for both the management of the processes to be defined, as well as for the management system itself (process modeling, etc.)

2. Process approach

Once this model has been adopted to support daily management, we distinguish three levels in the organization’s daily operation:

- **Strategic** - Basically refers to planning. On this level, decisions are made with respect to:
 - the improvement cycle: when and how to carry out system reviews
 - definition of objectives and goals (quarterly, biannual, yearly cycles ...)
 - the scope: benefit/lack of benefit if the current management system scope is extended, and planning for this extension, if applicable
 - resource allocation
- **Tactical** - Level on which the management system activities are carried out. These activities were planned at the strategic level, and include:
 - audits and reviews
 - implementation and monitoring of indicators
 - execution of improvement plans
- **Operational** - This level concerns the execution of regular operations within the limits of and in accordance with the management model, the planning of this management model, and the actions taken to improve the model.

Integration of quality systems (ISO 9000, ISO/IEC 27000, ISO/IEC 20000)

For some organizations that implement ISO/IEC 20000, these efforts are in no way equivalent to a first step towards a management system based on international standards like ISO 9000 or ISO/IEC 27000. Proper integration of the various quality management systems is a key factor for obtaining maximum benefit of these systems. Correctly aligning these models results in a single management system that integrates various aspects including:

- global quality management system
- IT service management
- security management

Some of the benefits include:

- a single structure for the entire system
 - processes
 - procedures
 - PDCA cycle
 - integrated tools
- integrated audits for the entire system

- consolidated improvement projects and initiatives, improving compliance and avoiding duplication of effort
- a message to the organization that is both consistent and clear
- reduction in the efforts and resources needed to maintain the system

Some of the more concrete aspects regarding the relationship between these standards and their integration are discussed below.

ISO 9000 and ISO/IEC 20000

When integrating with ISO 9000, the company must consider the broad framework offered by this standard. In an organization whose management already complies with ISO 9000, the following elements will generally already be covered:

- general requirements for the management system
- management's responsibility
- provision of resources
- PDCA cycle
 - planning
 - monitoring and follow-up
 - improvement

To a lesser degree, the following elements, which are in some way common to both standards, should be partially integrated:

- customer relationship management
- product and service control
- service provision

ISO/IEC 27000 and ISO/IEC 20000

For ISO/IEC 27000, if an organization utilizes this model for its management system, the requirements related to information security, formulated in ISO/IEC 20000, will have already been covered in depth.

This means that the updates and reviews (audits, review and improvement cycles) that are carried out in relation to information security, must refer to the practices implemented according to ISO/IEC 27000, while those elements formulated in ISO/IEC 20000 can be disregarded, as the ISO/IEC 27000 requirements supersede those of ISO/IEC 20000 in terms of information security.

COMPLIANCE AND CERTIFICATION

What is compliance?

The ISO standards for management systems, in particular ISO/IEC 20000, are made available to organizations as guides outlining management systems that help to improve the effectiveness and efficiency of operations and management within the organization. The organizations that base their management on the standard will earn a higher or lower alignment rating, representing the degree to which the organization is aligned with the details and requirements of the standard, depending on their purpose (scope) and the degree of success of the implementation project. This alignment rating is what we refer to as "compliance".

Certification versus compliance

ISO/IEC 20000 is a certifiable standard. This means that the compliance rating earned by organizations can be submitted to a third party (an independent organization, known as a certification body) for evaluation, and that the statement of compliance is endorsed by a third party. This evaluation is carried out through one or more audits, in which independent auditors review the degree to which the daily management and operational practices of the organization pursuing certification comply with the requirements set forth in the standard. These audits are carried out on behalf of the certification body. Specifically, for ISO/IEC 20000, the requirements to be audited are found in part 1 of the standard.

If the aspiring organization meets the minimum requirements of the standard, the auditors will issue a positive report, and the certification body will grant certification to the organization, for the areas of the organization (sites/departments/services) that fall within the scope of its management system. This acknowledgement is temporary and must be renewed by the organization through successive audit cycles carried out by the certification body. These audit cycles are usually annual with renewal (or termination) of the certification taking place every three years, if the company continues to prove its compliance (or not) with ISO/IEC 20000 during audits.

Advantages of certification by a third party

The endorsement of an organization by a certification body is advantageous to the organization for the following reasons:

- proof of the organization's level of compliance with the requirements in the standard, for the market and for society
- recognition of prestige and image
- possibility to demonstrate the organization's compliance with the practices set forth in ISO/IEC 20000, for clients or bodies to whom the organization provides or wishes to provide services; this is especially important if compliance is a requirement for participating in a bid or call for tender (public or private)
- the awareness and the commitment to maintain the "moment" creates the drive to maintain standard-compliant management practices, since "continued compliance" is necessary to conserve the certification during future certification reviews

Benchmarking

The degree to which an organization is compliant with ISO/IEC 20000 (whether certified or not), is also extremely valuable as a tool for making comparisons among organizations (benchmarking). To do this, the compliance criteria formulated in the standard (requirements) can be used as points of assessment for the company's practices, since ISO/IEC 20000 is an international, universally available standard that is recognized for its prestige.

The value of ISO/IEC 20000 as a benchmark is especially interesting as a means of evaluating maturity, as in the following situations:

- public interest studies, sponsored by local and national administrations, to evaluate the state of the IT service industry
- industry-based studies, sponsored by associations and employers associations, whose members see this tool as an opportunity to improve their competitive edge
- internal studies, for corporations that include various units or organizations providing IT services (in different countries or sites, for different business lines, for different internal or external clients, etc.)

In all these cases, benchmarking should be carried out in order to identify opportunities for improvement, as a source for improvement plans sponsored or led by the body promoting the study (e.g. public organizations, corporations, business associations).

Need for international recognition and certification of professionals

As adoption of ISO/IEC 20000 is spreading worldwide, the professionals involved in the implementation of the standard, whether in operations, definitions, project management or process auditing, must also obtain certification that demonstrates and endorses their knowledge and experience. This field is already being seen as more than just an idea or as something that could be of interest only to a selected few, but as something that should be a requirement for any organization that seeks compliance with the standard.

In this way, a need arises to create a professional certification program. This program must be sustainable over time, developed by the most recognized professional in the industry, maintained and spread worldwide, and must fulfill the needs of IT professionals and training companies.

Based on the experience of organizations with years of certifying individuals in different IT domains, the experience of non-profit organizations that assist IT professionals worldwide, and the results of early efforts to develop a certification program, we now have programs that provide the desired level of certification and recognition sought by professionals and organizations. After research, we can mention three certification programs for individuals, offered by:

- itSMF UK
- EXIN/TÜV SÜD Akademie
- IRCA

Taking into account the historical development of this type of certification, we note that itSMF UK (Great Britain) as well as EXIN (The Netherlands) developed exams based on ISO/IEC 20000 in the past. EXIN's approach was to give the candidate the opportunity to go from basic to advanced theoretical and practical knowledge on ISO/IEC 20000 and concepts on Quality Management Systems and ISO 9000. On the other hand, itSMF UK chose an approach based on the basic activities expected of professionals who intended to support and enable companies to bring their IT service processes into compliance with the standard (either as subcontractors or employees), mainly auditors or consultants.

Professionals who wished to be recognized for their qualifications would choose a certification program based on the marketing of each or the course content as provided by the training providers. Still none of them could show a candidate's progress in terms of concepts and terminology, and assess the candidate's aptitude in a complete way, making it hard for an organization, either public or private, to evaluate the real value that such certified professional could provide to an implementation process.

In November 2007, EXIN and TÜV SÜD Akademie introduced a new multi-level certification and qualification program for IT professionals titled: *IT Service Management according to ISO/IEC 20000*. The new program is based on the roles and activities of professionals, and focuses on the core principles and concepts of both IT service management and service quality management. This program is similar in structure to programs that have proven successful, since it uses certification by level, from a basic or fundamental level (Foundations) to a master's level based on occupational role (consultant or auditor). Between these two levels are intermediate levels providing practical knowledge (see figure 3).

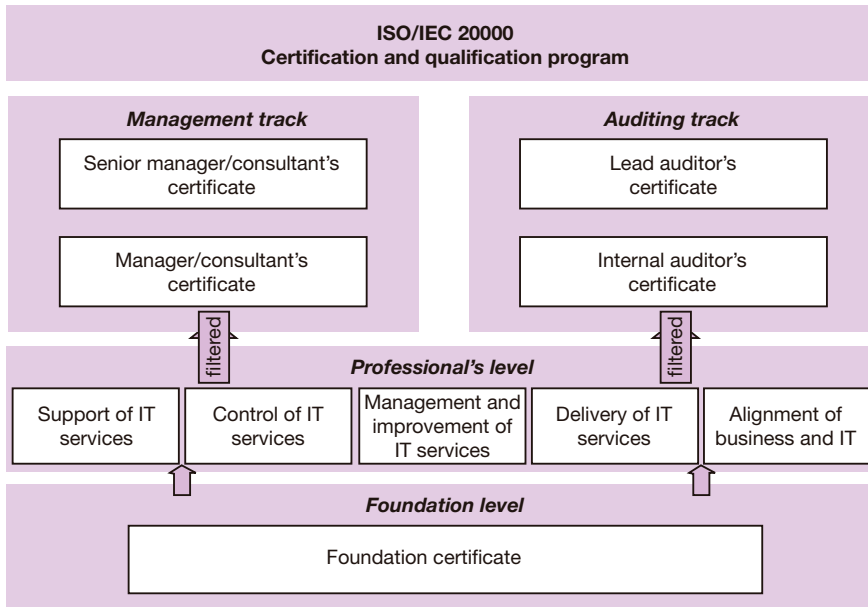


Figure 5 ISO/IEC 20000 certification and qualification program

In the future, the various players are expected to gradually assimilate to this type of program, at least to some degree. In this way, they will provide a common, universal knowledge base, from which all parties involved (professionals, organizations, certification bodies, IT community) will benefit equally. We can certainly expect variations and possible modifications, for example, in the amount of certifications granted by level, but the 3-level structure (or a 4-level one at the most) is likely to remain, because:

- it is easy to understand
- it provides a career plan
- it is similar to other programs available in the industry
- it allows for “cross-recognition” between the various program levels (acceptance of other certificates as “equivalents”)

General description of the programs available

This section contains a description of the certification programs. It identifies the various parts, but refrains from offering judgments favoring one program over another: although they belong to different organizations, we expect them to collaborate in an unbiased manner soon. Also, we expect their certification programs (that currently even share certain certificate names) will be equivalent in the near future.

itSMF UK

itSMF UK has created a certification program for organizations, and a training and certification program for individuals consisting of two exams, one for consultants and the other for auditors. The program for individuals is the topic of this section.

Prior to the exams, candidates can take a training course that normally lasts two to three days, and that includes a review of both parts of the standard and the activities carried out to develop the specific skills of the certificate being pursued.

In all cases, and as with all other organizations that deal with this type of certification, the type, course materials, and the certification provider are rigorously evaluated in order to ensure the quality of the training program. In particular, the majority of the organizations that offer courses for auditors require previous experience as auditors prior to taking the exam. This is the reason why this certificate (ISO/IEC 20000 for Auditors) focuses primarily on organizations that currently have experienced auditors. Furthermore, previous knowledge of both service management and ITIL is recommended.

ISO/IEC 20000 for Consultants has the same general structure as explained above, with the addition of practices focused on consulting activities beyond auditing. However, it is the intention of the program that both the program for consultants and the program for auditors teach the importance of each role in the compliance/certification of the organization, so that both auditors and consultants can work together in co-operation. For both courses, the concepts tested include:

- knowledge of the standard
- how to apply concepts
- how to help or evaluate an organization seeking compliance with the standard
- recognition of the tools and the steps to evaluate the likelihood that an organization will obtain certification
- initial evaluation and audit help
- organizations involved in the certification of an organization (i.e., RCB)
- preparation for the candidate so that they can obtain the qualification desired (consultant or auditor)

In addition to these certifications, itSMF UK unveiled an update to its programs at its annual conference (Brighton, UK) in October 2007, with the introduction of a beginner's level certification program that will be named ISO/IEC 20000 Foundation. This new certification was created in collaboration with BSI and ISEB. itSMF UK wishes to promote its program on a worldwide level and to take advantage of the international structure of the various chapters of the itSMF.

EXIN/TÜV SÜD Akademie

The EXIN/TÜV SÜD Akademie association has promoted the certification program represented in figure 3, which has served as an example to illustrate how the IT community hopes that the certificates currently available will develop. The EXIN/TÜV SÜD association has defined each of the levels available, and has developed a program of content requirements and definitions for the courses, elements that are very useful when selecting the training necessary to obtain certification.

To maintain and guarantee the desired quality levels, the organizations that provide training based on the program developed by EXIN/TÜV SÜD must conform to a strict accreditation program, that evaluates items such as the course material, the trainers, and the legal formation of the organization.

The EXIN/TÜV SÜD Akademie certification program for IT service management according to ISO/IEC 20000 is based on what, according to the standard, an IT service management function must and should accomplish:

- it has a strong focus on managing service quality
- it introduces different aspects on how to implement the different processes and activities
- it is designed to be framework-independent, and can be used alongside and in combination with other certification programs such as ITIL and MOF

The main points of each level are detailed below.

The Foundation Certificate

This certificate qualifies professionals in IT service management at a basic level of knowledge and understanding of IT service management according to ISO/IEC 20000. The certification is based on an introduction and overview of the main principles and concepts in the field, and a basic knowledge of the ISO/IEC 20000 standard. The only requirement for the Foundation certificate is to pass the multiple-choice exam.

The Professional Certificate

This certificate qualifies professionals involved in planning, monitoring, reporting and optimizing processes and activities in one or more of the four main areas of IT service management (as defined in the Q-Model, see figure 4).

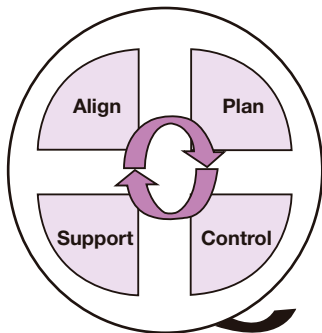


Figure 6 Q-Model as defined by EXIN/TUV SUD certification program

The certification is based on the knowledge, understanding and skills needed to perform these core tasks, including the knowledge and understanding of how to manage and improve the process areas according to the guidance provided in the ISO/IEC 20000 standard. To obtain one of the four Professional qualifications (i.e. a track certificate) three certificates (or exemption for them) will have to be obtained:

- the Foundation Certificate
- the Professional Certificate in management and improvement of IT service management processes
- one of the certificates for Support, Control, Alignment or Delivery of IT Services

Each holder of a Professional certificate attending an accredited training course must successfully complete a practical assignment, and pass the case-based multiple-choice exam.

The Manager/Consultant Certificate

This part of the certification program aims at qualifying professionals in supporting an organization in implementing and optimizing its IT Service Management functions, in line with or to fully satisfy the requirements of ISO/IEC 20000.

The Manager/Consultant training and exam focuses on:

- how to motivate for quality IT service management and certification
- how to design service improvement programs aligned to the organization's strategy

- how to manage service improvement programs
- how to evaluate IT service management

Organizational and communication skills must be practiced and applied in an assignment. To qualify as a Manager/Consultant in IT service management according to ISO/IEC 20000 one must:

- hold (or be exempted for) one of the Professional qualifications
- attend an accredited training course
- successfully fulfill the assignment(s)
- pass the scenario-based essay style exam (2 hours, 5 questions)

The Auditor Certificate

The audit certificate will be based on an audit course taking the participants stepwise through the entire process, using the knowledge and understanding in ITSM and SQM as proven by a Professional certificate. The main purpose at this level is to recognize proof of compliance to the standard, allowing an organization to pass the certification process and obtain the certification distinction.

The exam tests the application of the understanding. In addition, skills and practical assignments are an integral part of the training course.

This certification program provides benefits to all parties involved, such as:

- a practical way of improving quality
- certification and training course concept in line with the company
- suited for IT staff with experience in other well-known standards and best practices, such as ITIL[®], MOF, СоbIT[®], ISO 9000, CMMI and ASL⁶
- based on competencies required by employers.
- aimed at professional development of various groups of IT staff
- modular structure
- option to enter the program at different levels
- recognized, independent certification

IRCA

Unlike the two certification programs described above, the International Register of Certificated Auditors (IRCA) is more specific. From the very start, IRCA focused exclusively on training for auditors and had no intention of creating a complete ISO/IEC certification program.

The IRCA certification program, known as ITSMS - Information Technology Service Management Auditor Certification Programme - has 6 different tracks:

- Provisional Internal Auditor
- Internal Auditor
- Provisional Auditor
- Auditor
- Lead Auditor
- Principal Auditor

The objective as stated on IRCA's website is: “[...]Re-assurance that IRCA auditors employed to audit organizations' quality management systems for certification to ISO 20000 are competent and committed to continuing professional development[...].”

⁶ ASL: *Application Services Library*

Clearly, the goal of a model like this is for certified auditors to gain the proper practical knowledge, including the candidates' previous auditing experience.

It is worth noting that, besides knowledge of both parts of the ISO/IEC 20000 standard, auditors who wish to obtain individual certification must also be familiar with ISO 19011:2002, which serves as a guide for quality and/or environmental management system auditing.

As with the rest of the auditing certificates, the number of candidates for this program is limited, and requires that participants have had previous experience, that they have passed a previous course in IT service management (at the time of publication of this article, IRCA recommends a fundamentals course from ITIL), and that they have performed at least three audits (for Lead Auditors).

FUTURE EXPECTATIONS AND CONCLUSIONS

Projection and expected updates to the standard

The ISO/IEC 20000 standard is continuously evolving and adapting to the needs and changes within the industry and with respect to IT clients.

The current version, ISO/IEC 20000:2005, was published in 2005 by "fast-tracking" approval of a standard based on the British Standard BS 15000. To guarantee that the standard will adapt to worldwide needs and requirements, its publication was linked to a period of review and modification, which is currently in progress. This review involves improvements to parts 1 and 2 of the standard. The improvements take into consideration the contributions made by the various national certification organizations from ISO member countries. Other lines of action are also being drafted.

The new lines of action to be included in future versions of the standard are the following:

- Guide to the scope and applicability of the standard
This addition aims to provide advice regarding the definition of the scope and applicability, which each organization is advised to establish when pursuing compliance with the requirements set forth in section 1 of ISO/IEC 20000. To do this, guidelines will be provided that will be supported by examples that serve as an aid to understanding and applying these guidelines.
- Process Reference Model (PRM) and Process Assessment Model (PAM)
 - The Process Reference Model will provide a guide to assist organizations, so that the processes they implement, accomplish their mission or purpose within the organization.
 - The Process Assessment Model, which uses an approach similar to CMMI, will facilitate the assessment of process maturity based on a series of levels.
- Incremental Conformity Model to the standard
This model aids organizations who wish to pursue incremental conformity with the standard and will propose, by means of a guide or a set of recommendations, a division of the requirements listed in section 1 of ISO/IEC 20000. This allows the requirements to be fulfilled one by one, until all requirements included in the standard are met.

Conclusions

As stated in this article, the market has great expectations for this standard and has taken firm steps and given unequivocal support to extending the independent, international and all-inclusive development of ISO/IEC 20000.

According to a survey of Axios Systems, presented in November 2007, in which 278 IT professionals from large and mid-sized enterprises, in both the public and private sector were interviewed: 18% of the respondents are accredited with ISO/IEC 20000, compared with just 2% last year. This emphasizes the value that organizations are recognizing in the best practice standard. Additionally, 70% also stated that, during this year, ITSM as a broad concept has contributed to improve the support of IT for the business. Tasos Symeonides, founder and CEO of Axios Systems, said: "IT professionals have recognized the value that ITIL and ISO/IEC 20000 can bring in aligning them more closely to the business".

ISO/IEC 20000 will continue to mature and expand, and will reach the distinction of being the indispensable and fundamental guide that enables organizations to continuously and unwaveringly navigate the turbulent sea of best practices and frameworks for IT service management.

According to ISO 9000, the foundation for standardized quality systems consists of eight quality management principles that will be used by top management to achieve improved performance within the organization:

1. customer focus
2. leadership
3. involvement of people
4. process approach
5. system approach to management
6. continuous improvement
7. factual approach to decision-making
8. mutually beneficial supplier relationships

As pointed out in this article, ISO/IEC 20000 takes all these principles into account. They make up an integral part of the standard. With the help of internal resources (ISO/IEC 20000 committees) and associated resources (non-profit organizations that support IT professionals), which have served to broaden the boundaries of the standard.

A study concerning the future of the market shows that the next steps must include:

- independent and international professional certifications
- the expectation that more and more organizations will pursue compliance with the standard
- developments in the countries' public administrations, leading to legislation that requires certification for public and private organizations
- more certified organizations
- mindful of the need for updates, the ISO/IEC 20000 committees are already working hard on new sections for the standard, which are currently in different phases of completion

Because there is already a large amount of literature on this subject, and the standard itself is readily available, this article does not aim to cover all aspects of the standard. Instead, the aim of the article is to make updated information available, which allows the reader to form their own conclusions with regard to the various aspects, and to let the reader understand how to approach an ISO/IEC 20000-based project.

There are elements that will change in the future and the standard will continue to be modified to accommodate these changes, perhaps even changing the needs and requirements of the IT sector of the market. For example, there is still much progress to be made in the area of training: Is a simple model consisting of two or three different certificates

adequate, or will a more complex training model be required, i.e. a model that comprises different levels and includes the opportunity to build a career?

The current situation confirms that this standard is not something temporary, but is, rather, a solid set of guidelines, supported and maintained by all participating members from the IT community, and valued by organizations in general, who see the benefits of the model it provides and the firmness of the principles it promotes.

The short-term and long-term future will bring greater coherence to this IT service management work. ISO/IEC 20000 will increasingly serve as a compass, the guide that enables us to locate “north” and enables service providers to achieve their desired results. We are moving from our current position to our goal, and ISO/IEC 20000 is our unquestionable guide.

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