THE EUROPEAN UNION'S 10TH EDF PROGRAMME FOR NIGERIA

GUIDELINES ON CONFORMITY ASSESSMENT – ISO/IEC 17024:2012

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FEDERAL GOVERNMENT OF NIGERIA

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Abbreviations

AB	Accreditation Body
ANSI	American National Standards Institute
CA	Conformity Assessment
CAB	Conformity Assessment Body
CASCO	Committee on Conformity Assessment
CB	Certification Body
CCPMO	Consultative Committee for Professional Management Organizations
CBP	Certification Body for Person
CPLA	Certified Pupil Laboratory Analyst
CPrLA	Certified Principal Laboratory Analyst
CSLA	Certified Senior Laboratory Analyst
CTLT	Certified Testing Laboratory Technician
EMS	Environmental Management System
EU	European Union
FSMS	Food Safety Management System
Global G.A.P	Global Partnership for Good Agricultural Practice
IAF	International Accreditation Forum
IEC	International Electrotechnical Commission
IMS	Information Security Management Systems
IPAN	Institute of Public Analysts of Nigeria
ISO	International Organization for Standardization
JTA	Job Task Analysis
KSA	Knowledge and Skill Analysis
MLA	Multilateral Arrangement
MRA	Mutual Recognition Arrangement
MSTQ	Metrology, Standardization, Testing and Quality
PAC	Pacific Accreditation Cooperation
QIS	Quality Infrastructure Systems
SOP	Standard Operating Procedures
SoTLAN	Society of Testing Laboratory Analysts of Nigeria
UNIDO	United Nations Industrial Development Organization
WFOT	World Federation of Occupational Therapy

General Context

The *Guidelines on Conformity Assessment – ISO/IEC 17024:2012* have been produced in the context of the National Quality Infrastructure Project for Nigeria funded by the European Union. The findings and the relevant case studies are largely based on the experience and lessons learned during the implementation of the project by the executing agency, the United Nations Industrial Development Organisation (UNIDO).

This publication would not have been possible without **Dr. Vijay Krishna** senior director, credentialing accreditation programs at the American National Standards Institute (ANSI), **Dr. Cynthia D. Woodley**, psychometrician and exam development expert, **Dr. Shaukat H. Malik**, chief technical adviser for UNIDO's National Quality Infrastructure Project for Nigeria and **Dr. Sharon Goldsmith**, internationally recognized expert on standards development, certification, continuing education and accreditation.

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CHAPTER 1

Globalization of Workforce Certification and Why Quality Certification Matters

Introduction

As our world becomes more global, boundaries that have been historically defined by states, provinces or even countries are rapidly disappearing. Nowhere is this more evident than in the areas of professional certifications in many industries.

Rapid changes in technology, delivery systems and workforce mobility have increased the need for systems that promote the transnational use of qualified persons and services. Transnational standards that address the education and credentialing of personnel are a critical component of such systems.

Several factors are fueling interest in creating and expanding transnational standards of quality for personnel in many industries. For example in medicine, architecture, law, and accounting new service delivery mechanisms, such as tele practice and outsourcing have literally erased the geographic boundaries that traditionally limited both employment and access to services to specific geographic areas. The issue of where a resident of one country needs to be licensed or certified if he/she wants to work on a project in another country is being discussed by many regulatory agencies and associations throughout the world. Deciding which standards are to be followed, who has jurisdiction to monitor the quality of the service and deciding who has jurisdiction if a mistake is made are critical components of these discussions.

Additionally, government and private interests want to increase international trade in services by creating more transparency between differing certification systems and promoting the portability of qualified persons. These interests are also beginning to influence how colleges and universities educate students. Professionals must now be educated to compete in a global marketplace

Professional certifications that identify work related competencies and verify those individuals that can demonstrate that these competencies have been attained contributes to the development of human capital. The Consultative Committee for Professional Management Organizations (CCPMO) found in their economic impact assessment study that estimated lifetime economic benefit associated with holding professional certification/ qualifications and membership of professional institute is approximately £152,000 in today's money terms (London Economics, 2008). Eight leading professional bodies in business disciplines in UK with over half a million individual members were represented by CCPMO. Further, the broader economic impact in terms of additional tax revenue contributed by an individual with professional qualifications and membership of a professional institute was found to be about £53,000 in monetary terms.

In many countries certification systems are very well developed for the professions such as medical doctors, lawyers and engineers but less well developed for other components of the workforce. In many countries employment only requires that a person has completed a course of study or earned a degree.

Due to the positive impact of certification of persons on economic development, many countries are exploring how to design and implement formal certification systems. This may include designing in- country certification systems that are unique to country specific needs, adapting existing internationally recognized certification systems and/or encouraging international certification bodies to make certifications available to citizens within a country. This interest in developing systems is being driven by government as well as private sector interests, who often work in partnership.

Among the factors driving this interest to develop internationally accepted certification systems include:

- Increased governmental interest in negotiating trade-in-services agreements that require systematic means of defining the requirements for, and evaluating, what constitutes "qualified personnel".

- The interest of national corporations to expand their businesses globally and ensure consistency in the quality of their employees.

- The increased need for public protection as electronic systems of delivering services such as telehealth and distance education make the cross border delivery of healthcare, education and other services more routine.

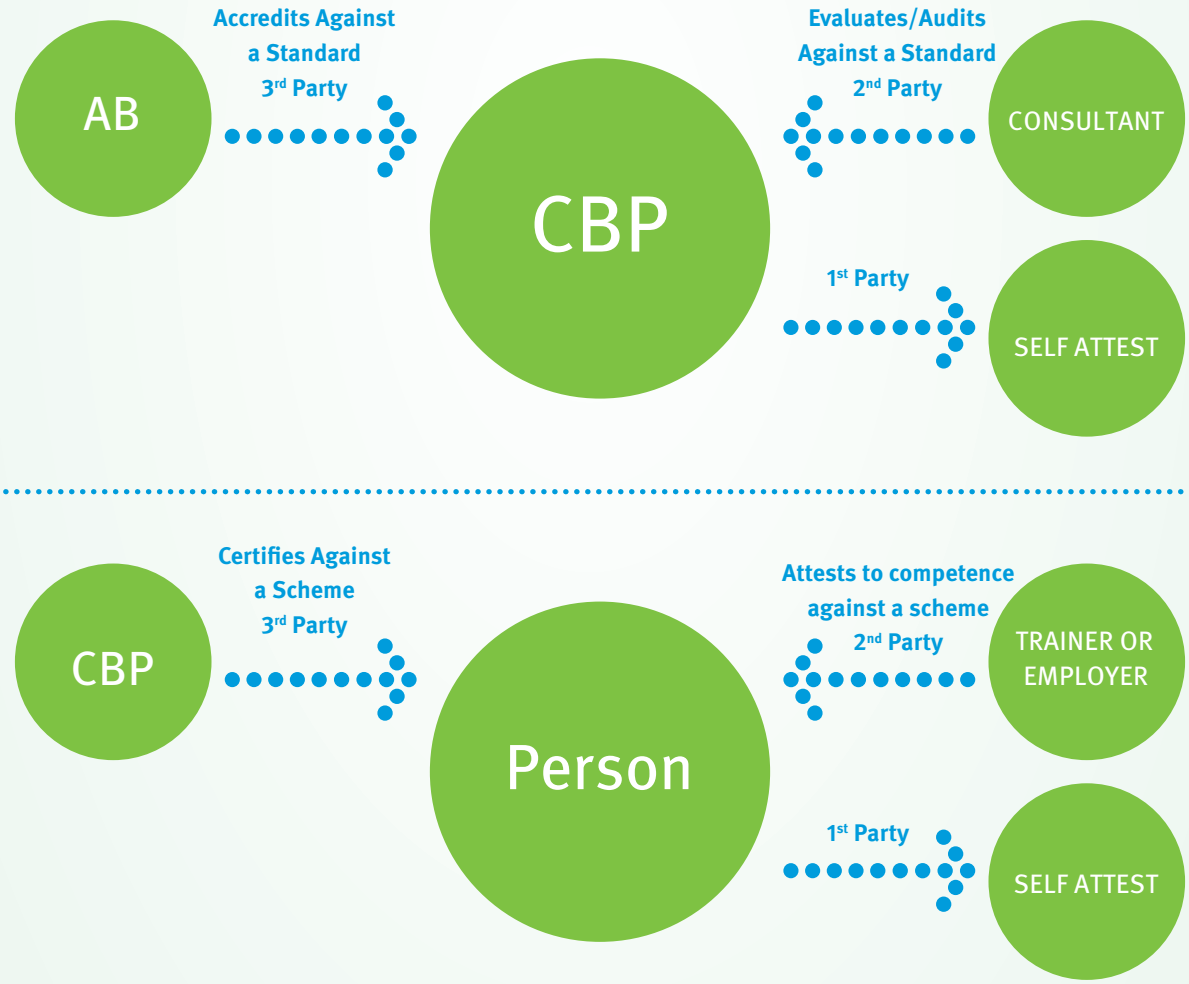
- The increase in migration and international recruitment is creating increased need to develop consistent systems for national and local authorities to assess credentials of internationally applicants for employment

Definition of certification

Certification is the third party verification that an individual possesses the knowledge, skills and abilities (competencies) to do a job. ISO/ IEC TS 17027: *Conformity Assessment Vocabulary related to competence of persons used for certification of persons* defines certification as "third party attestation" and further discusses attestation as the fulfillment of specific requirements that have been demonstrated. The key concepts in certification of persons are

- Identification of the specific tasks and the related knowledge, skills and abilities (competencies) required to perform a job;
- Systems to assess whether an individual possesses these competencies; and
- Independent third party verification to the public that an individual has successfully demonstrated he/she possesses the defined competencies.

FIGURE 1 | **FIRST PARTY, SECOND PARTY AND THIRD PARTY**



The advantages of using certification systems to identify qualified personnel

In many countries evidence of qualification to perform a job is defined by the level and type of education or experience that person has acquired. However, there is often no formal link between a person's education or experience and the knowledge and skills needed to perform a job successfully, Sometimes when education is the only requirement for a job, employers complain that despite having the requisite education, workers are unable to competently perform a job.

Education content is generally solely developed by the education faculty who teaches a specific course and may or may not be familiar with specific job requirements. Additionally, the education content may not even be designed train people to do specific jobs, but rather is designed to be broader in scope. Certification, in contrast to education, requires that there be a systematic analysis of the knowledge, skills and abilities are to perform each of the specific tasks that make up a job and mechanisms to assess that the knowledge skills and abilities have been attained. Certification systems require that employers and other stakeholders participate in identifying the knowledge, skills and abilities (competencies) than individual must have to do a job properly. Employers will then participate further in defining the certification requirements including the assessment mechanisms that should be used to identify those individuals who possess the requisite competencies.

Using certification systems to identify qualified personnel provides more assurances than solely requiring education that the competencies individuals bring to the job match employer need and improves the quality of the workforce.
Key characteristics of a certification system include the following:

- Certification is a public statement or declaration that one has passed an examination, and otherwise met specified criteria demonstrating that one has the necessary competencies necessary to successfully perform the jobs that comprise a specific occupation.
- Certifications are granted for a limited period of time and must be renewed to ensure that individuals continue to possess the competencies required to perform the job. Certification renewal may require ongoing education and/or assessment and/or experience.
- Certifications can be issued by anyone or any type of organization. These include government or regulatory body, professional or trade associations, private, independent certification organizations, employers or equipment and software developers.
- Certification for certain occupations may be voluntary in some countries but is mandatory in others. Sometimes the certification becomes so important to job attainment that it can be considered quasi-mandatory. This occurs when the certification is written in as a requirement in job descriptions, career laddering systems, or project specifications.

ISO/IEC 17024:2012,
Conformity assessment – General requirements for bodies operating certification of persons

The international Standard ISO/IEC 17024:2012 *Conformity assessment– General requirements for bodies operating certification of persons,* provides a global benchmark for quality certification. During recent years, this standard, developed by the International Organization for Standardization (ISO), which represents members from 162 countries has changed the way certifications are offered and has harmonized expectations for what constitutes quality certifications throughout the world. This standard was developed by ISO based on the need for public protection by establishing that individuals have the required competencies to perform their job. Government agencies worldwide have recognized the standard as a critical requirement for personnel certification bodies that offer certification in many industries including diverse and critical areas related to public health, environment, and national security.

FIGURE 2 | **RELATIONSHIP AMONG AB, CB AND CERTIFIED INDIVIDUAL**

The specific requirements for bodies operating certification of persons (certification bodies) that are presented in the Standard are contained in the chapter on developing certification programs.

As noted in the introduction to the Standard:

This International Standard has been developed with the objective of achieving and promoting a globally accepted benchmark for organizations operating certification of persons. Certification for persons is one means of providing assurance that the certified person meets the requirements of the certification scheme. Confidence in the respective certification schemes for persons is achieved by means of a globally accepted process of assessment and periodic re-assessments of the competence of certified persons.

However, it is necessary to distinguish between situations where certification schemes for persons are justified and situations where other forms of qualification are more appropriate. The development of certification schemes for persons, in response to the ever increasing velocity of technological innovation and growing specialization of personnel, can compensate for variations in education and training and thus facilitate the global job market. Alternatives to certification can still be necessary in positions where public services, official or governmental operations are concerned.

In contrast to other types of conformity assessment bodies, such as management system certification bodies, one of the characteristic functions of the certification body for persons is to conduct an examination, which uses objective criteria to measure competence and scoring. While it is recognized that such an examination, if well planned and structured by the certification body for persons, can substantially serve to ensure impartiality of operations and reduce the risk of a conflict of interest, additional requirements have been included in this International Standard.

In either case, this International Standard can serve as the basis for the recognition of the certification bodies for persons and the certification schemes under which persons are certified, in order to facilitate their acceptance at the national and international levels. Only the harmonization of the system for developing and maintaining certification schemes for persons can establish the environment for mutual recognition and the global exchange of personnel.

This International Standard specifies requirements which ensure that certification bodies for persons operating certification schemes for persons operate in a consistent, comparable and reliable manner. The requirements in this International Standard are considered to be general requirements for bodies providing certification of persons.

Certification of persons can only occur when there is a certification scheme. The certification scheme is designed to supplement the requirements included in this International Standard and include those requirements that the market needs or desires, or that are required by governments.

This International Standard can be used as a criteria document for accreditation or peer evaluation or designation by governmental authorities, scheme owners and others. "

The Standard specifies that the requirements for certification bodies contained in the Standard are based in the following principles:

Principles for certification bodies for persons and their certification activities

General

A.1.1 This International Standard does not give specific requirements for all situations that can occur. These principles should be applied as guidance for the decisions that may need to be taken for unanticipated situations. Principles are not requirements.

A.1.2 The overall purpose of certification of persons is to recognize an individual's competence to perform a task or job.

A.1.3 The certification body has a responsibility to ensure that only those persons who demonstrate competence are awarded certification.

A.1.4 Certification of persons provides value through public confidence and trust. Public confidence relies on a valid assessment of competence, by a third party, reconfirmed at defined intervals.

A.1.5 The certification body should act in a responsible manner so as to provide confidence to interested parties in its competence, impartiality and integrity.

FIGURE 3 | **PRINCIPLES FOR CERTIFICATION BODIES FOR PERSONS AND THEIR CERTIFICATION ACTIVITIES**

Impartiality

A.2.1 Certification of a person should be based on objective evidence obtained by the certification body through a fair, valid and reliable assessment, and not influenced by other interests or by other parties.

A.2.2 It is necessary for certification bodies and their personnel to be and to be perceived to be impartial in order to give confidence in their activities and their outcomes.

A.2.3 Threats to impartiality include, but are not limited to, the following:

- self-interest threats: threats that arise from a person or body acting in its own interest to benefit itself;
- subjectivity threats: threats that arise when personal bias overrules objective evidence;

- familiarity threats: threats that arise from a person being familiar with or trusting of another person, e.g. an examiner or certification body personnel developing a relationship with a candidate that affects the ability to reach an objective judgement;
- intimidation threats: threats that prevent a certification body or its personnel from acting objectively due to fear of a candidate or other interested party;
- financial threats: the source of revenue for a certification body can be a threat to impartiality.

Competence

Competence of the personnel of the certification body is necessary to deliver certification that provides confidence.

Confidentiality and openness

Managing the balance between confidentiality and openness affects stakeholders' trust and their perception of value in the certification activities.

Responsiveness to complaints and appeals

The effective resolution of complaints and appeals is an important means of protection for the certification body and interested parties against errors, omissions or unreasonable behavior.

Responsibility

The certification body has the responsibility to obtain sufficient objective evidence upon which to base a certification decision.

Accreditation for Certification Bodies

Several regulatory and private agencies now operate formal systems to accredit or recognize those certification bodies that demonstrate compliance to this standard.

Third-party recognition of compliance to an ISO standard is a prestigious accomplishment throughout the world. In some industries, conformity with relevant ISO standards is a condition of doing business and participating in certain trade agreements.

Accreditation under an ISO standard is also used by government agencies and multinational employers as a reliable way to ensure that personnel certifications are sufficiently rigorous. This is particularly valuable in countries where personnel certification systems are being developed to supplement or supplant governmental recognition of personnel qualifications.

In this context, personnel certifications accredited under ISO can promote direct investment within these countries by attracting multinational corporations desiring assurances that the locally developed credentials that relate to a local workforce correspond to internationally accept based practices in how certification systems are to be designed and operated.

CHAPTER 2

Requirements for Creating a Certification Program – Implementation Clauses

FIGURE 4 | REQUIREMENTS FOR CREATING A CERTIFICATION PROGRAM – IMPLEMENTATION CLAUSES

Required policies and procedures for quality certification programs are described in the international standard ISO/IEC 17024:2012 *Conformity assessment – General requirements for bodies operating certification of persons*. The Standard address all elements of the certification program including the structure of the program, how to define and implement the requirements to earn, maintain and renew certification, the design and implementation and monitoring of assessment systems, management system requirements procedures to manage financial and staff resources provide information to the public, maintain security of exams and reporting systems and ensure fair and equitable treatment for all candidates for certification and certification holders.

The Standard addresses the following requirements for certification bodies:

- General requirements for a certification body,
- Structural requirements,
- Resource requirements,
- Records and information requirements,
- Certification schemes ,
- Certification process requirements; and
- Management system requirements.

Clause 4: General requirements

Not every clause of ISO/IEC 17024 demands a documented policy and procedure. The so-called "implementation clauses" start as of Clause 4.

This section of the Standard covers legal matters, responsibility for decision on certification, impartiality, finance and liability

These requirements can contribute to public protection and public confidence by assuring that certification bodies are legitimate organizations, operate in a fair and impartial manner, maintain responsibility for their actions including certification decisions and have the resources to administer and maintain the certification programs they operate. Impartiality and objectivity are the cornerstones for the certification of persons. If the process for verifying the competence of persons is not impartial and objective then there is no value to the certification.

This section of the Standard requires that certification bodies

- Be a legal entity or part of a legal entity.

- Maintain responsibility for all decisions related to certification – granting,maintaining, recertifying, expanding, reducing the scope of certification, and suspending or withdrawing certification.

- Manage impartiality. This includes
  - Having policies and procedures to maintain impartiality;
  - Not unfairly limit who can participate in the certification program;
  - Not allowing conflicts of interest to influence how the certification program operates;
  - Systematically identifying possible threats to maintaining impartiality and how to mitigate these threats; and
  - Receiving balanced input from all stakeholders in the design and operation of the certification requirements.

- Have adequate financial resources

Clause 5: Structural requirements

These requirements focus on the organizational and management structure of the certification body and the specific requirements when a certification body conducts training as well as offers certification. Offering both training and certification is a threat to impartiality. Offering training and certification in the same body increases the possibility that instructors will" teach to the test" or try to influence the content of the exam. If the certification body offers training and certification, the certification body must demonstrate the independence of certification activities from training activities to ensure that confidentiality, information security and impartiality are not compromised. This includes not requiring a candidate take the certification body training if an acceptable alternatives are available and not allowing trainers to participate as examiners for two years.

This section of the Standard also requires certification bodies to document their organizational structure (that shows reporting responsibilities) and identify which personnel are responsible for specific fulfilling specific roles.

Clause 6: Resource requirements

This section addresses the resources that are required to operate the certification body. These include personnel requirements, outsourced services and other resources such as equipment and exam sites.

Key elements in this requirement address the need for personnel who have the competencies to do what they are assigned to do. The term personnel includes everyone who works with the certification body including salaried employees, contract employees, board or committee members and vendors. The certification body must monitor and evaluate personnel to assure that everyone operates without conflict of interest and has the competencies to perform the tasks they have been assigned. All vendors must have written legally enforceable agreements (contracts) that define their duties and responsibilities.

Clause 7: Records and information requirements

Public information is a key component of any certification system. A goal of certification is to inform the public about what a specific certification qualifies a person to do, the requirements to be certified and who holds a current, valid certification.

This section of the Standard addresses what applicant and candidate and certified person records must be maintained, how they must be stored and destroyed and how long they must be maintained. The requirement highlights the importance of security, especially security of examination materials and information and the measures needed to maintain security before, during and after administration of examinations.

The requirement also defines who has access to what kinds of information about the certification scheme and the individuals who have earned certification. It identifies how and when information can be released and what types of information is considered public and what is confidential.

Clause 8: Certification schemes

The key component to any certification program is its scheme. The scheme consists of the standards and systems that certification programs use to determine what the requirements are for initial certification, maintenance of certification and re-certification and how individuals are to be assessed against these requirements. All schemes most start with a Job –task analysis. This analysis systematically defines the tasks that a certified person is expected to perform, the knowledge , skills and abilities needed to successfully perform teach task and where these competencies are acquired (for example on the job, through defined training, through degree granting educational programs). This information is used to determine the prerequisites –if any to apply for certification- which may include requirements for specific types of training or education or employment experience. The job task analysis will also define which tasks are performed most frequently and which, although not necessarily performed frequently are most critical to be performed correctly. This information is then used to define the content and nature of the assessments that the

certification program develops and ultimately will require each applicant for certification to pass.

A key element in certification is to ensure that the job tasks that a person is certified to due reflect current industry needs and that certificated person continues to have the competencies to perform the job even if that job changes. These concepts help frame the requirements to maintain certification and to renew certification.

The job task analysis must be repeated periodically based on the nature of the industry and how quickly job tasks, regulations or other key factors that can influence the competencies required being certified change. The Standard requires that when the scheme changes, all certified individuals must demonstrate that that they meet the revised scheme requirements. Additionally certification is only granted for a defined period of time and certified persons are required to renew certification at the conclusion of these intervals. The scheme will also include a code of conduct for certified persons.

The Standard requires that the scheme be developed using accepted procedures and include the involvement of subject matter experts, including the input from a representative sample of industry stakeholders. In addition to developing certification system, the scheme can also be used to develop specific training and education programs for an industry. Schemes may be developed by any number of bodies including:

- Certification organizations
- Government agencies
- Trade or professional associations
- Employers or unions
- Training programs

The certification body is not required to develop its own scheme. However, if it uses a scheme developed by another organization the certification body must ensure that the scheme was developed in compliance with the requirements of the Standard.

A resource that more fully addresses the concepts and requirements contained in the Standard regarding how schemes are to be developed and use is entitled *How to develop schemes for certification of persons: guidance of ISO/IEC 17024* . This document is publically available and can be downloaded from the ISO website at https://www.iso.org/publication/PUB100384.html

Clause 9: Certification process requirements

This requirement addresses what the certification body does to implement the scheme. It includes several components including application, assessment, examination, making the certification decision, recertification, withdrawing or suspending certification, use of certification logo or mark and appeals and complaints.

• Application process

– The certification body must make available an overview of the certification process.

– Must include requirements for certification, scope, description of the assessment process, applicants rights, duties of a certified person and the fees.

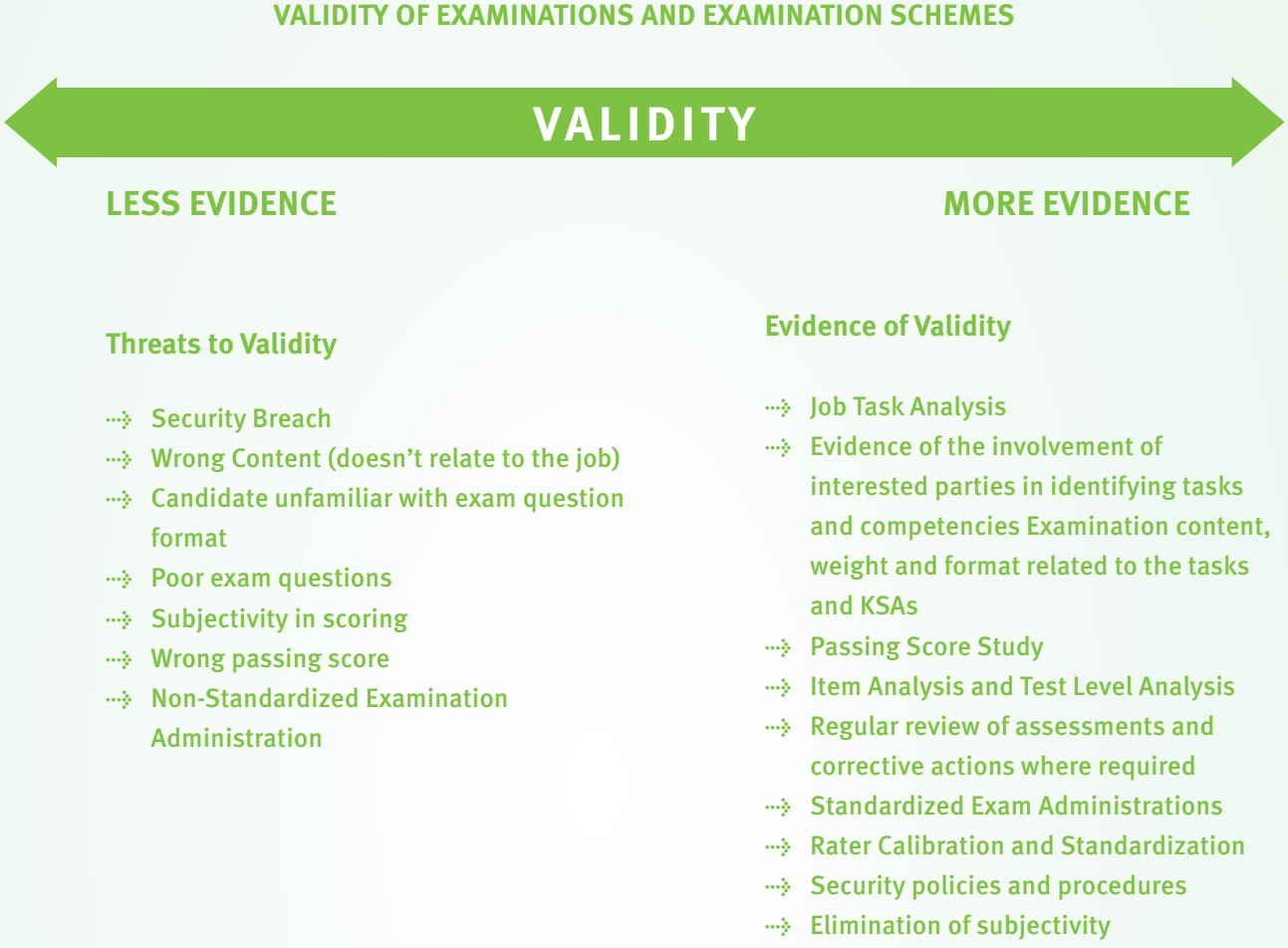
– The application process must include an opportunity for the candidate to request and if reasonable receive accommodations for special needs. The application process requires the candidate to formally agree to comply with certification requirements.

– The certification body must review the application to determine that any prerequisite requirements have been met. Where taking into account work performed by another body, the certification body must demonstrate that the results are equivalent to and conform to the requirements established by the scheme.

• Assessment/examination

– The assessment requirements may include any method can verify that the candidate possesses the knowledge, skills and abilities that have been delineated by the scheme requirements. Assessments may include evaluation of work experience and formal examination. An examination is one form of assessment and is an instrument to find out information about somebody at a given time. Exam developers have a responsibility to make sure that only those who have the requisite competencies are able to pass the examination. Otherwise the examination has no value to the public and the employers. The certification body must make sure that all examinations are fair, measure what they are intended to measure and are consistently applied.

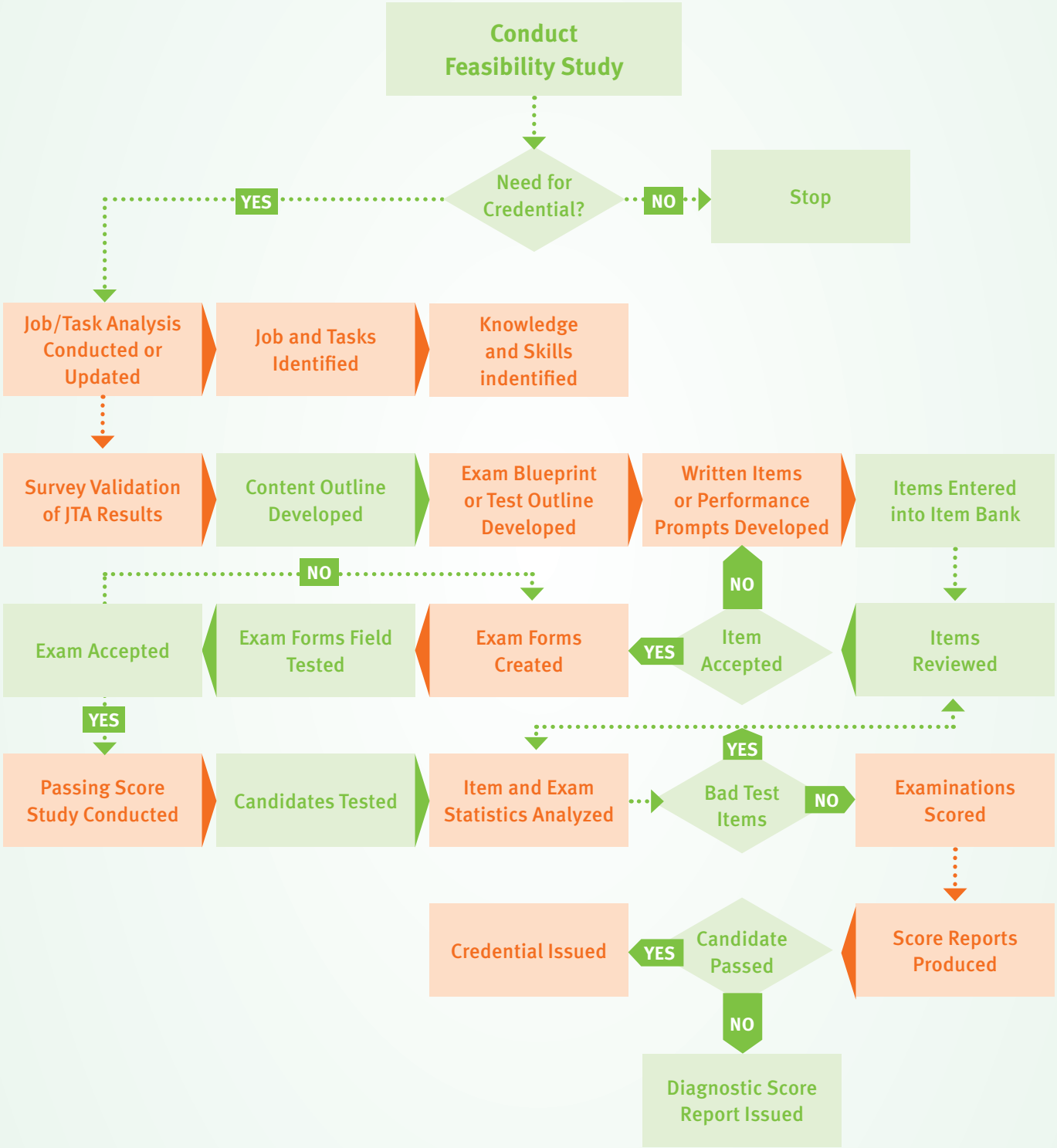
FIGURE 5 | **ESTABLISHING VALIDITY**



Exams may be written exams and/or performance exams, Exams cannot generally assess whether a candidate has all the needed knowledge and skills but rather assess those competencies that have been determined to be most important to the job the candidate is being certified for.

FIGURE 6 | **RESOURCE REQUIREMENT FOR EXAMINATION CYCLE**

CERTIFICATION PROGRAM EXAMINATION DEVELOPMENT AND ADMINISTRATION



• Decision on certification and withdrawing certification

– Certification body must maintain responsibility for making decisions about who gets certified and shall have sufficient information on which to base that decision and shall base the decision solely on whether the requirements of the certification scheme have been met. These requirements are intended to ensure that all candidates be treated fairly and equitably and that outside factors such as family connections or political affiliation do not impact any certification decision.

– Certification cannot be granted unless all the certification requirements have been met (there is no provisional certification).

– All certified persons must receive a certificate but the certification body retains ownership of that certificate meaning the certification body has the authority to remove, suspend, withdraw or reduce the scope of certification for any individual.

• Recertification process

– As noted above, certification is time limited and the certified persons must demonstrate that they continue to possess the competencies the certification represents. In some industries such as technology, medicine and engineering job tasks and the competencies needed to perform the jobs change very quickly. In such instances time period between initial certifications and re certification may be very short; in other occupations the period until recertification is required may be much longer. The certification body must take into account the nature of the job, relevant regulatory requirements and other factors in determining how often recertification will be required. This is a critical factor for public protection so the public can be assured that all individuals holding a current certification continue to have the competencies the certification has verified and can perform a job even if the nature of that job changes over time.

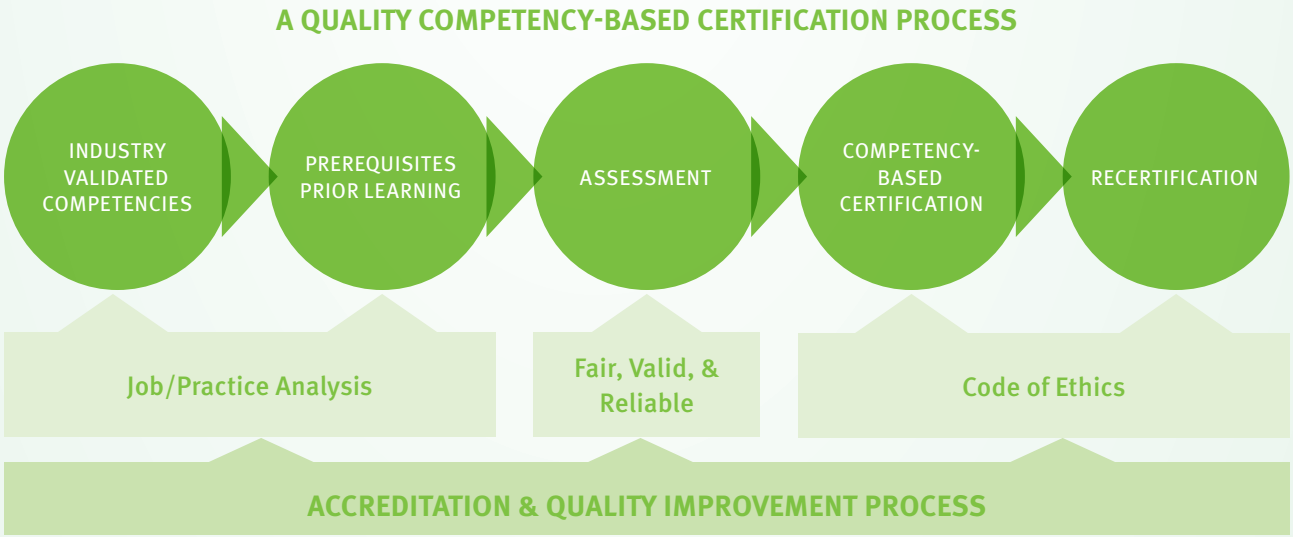
• The use of certificates, logos and marks

– This is another key element for public protection because it controls who can use the certificate of certification and how it can be used. It is designed to prevent individuals from making false claims about their certification status.

• Appeals and complaints

– Certification bodies must have procedures that will permit the public to file complaints against the certification body and/or the individuals it has certified. There must be processes to receive and investigate and adjudicate these complaints. Likewise, an individual has the right to appeal a certification decision and the certification body must have a process to receive, investigate and adjudicate any appeals it receives.

FIGURE 7 | **COMPETENCY BASED CERTIFICATION**



Krishna, V. (2014). Certification of HRD professionals. In Handbook of Human Resource Development (pp.661-672). Chalofsky, N. (Ed.). Wiley: Hoboken, N.J (pg. 661-672).

Clause 10: Management systems

This requirement is designed to document, evaluate and improve program operations and ensure that the certification body achieves its own objectives and complies with the requirements in the Standard.

Requirements for a management system include the following:

- All policies and procedures must be documented in writing;
- A system to individually identify each document must exist (document control);
- Internal audits must be systematically conducted to evaluate how each policy and procedure is working;
- There must be systems to identify and correct any problems identified by these audits;
- There must be systems for preventive actions to determine any potential non conformities to requirements and other problems and take actions to eliminate the causes of any problems before problems actually occur;
- Top certification body management must be involved in and review the management system; and
- All personnel should understand the management system.

FIGURE 8 | **OVERVIEW OF ISO/IEC 17024**

CHAPTER 3

Case Studies for Guidelines on ISO/IEC 17024

Scope of ISO/IEC 17024

NOTE: *ISO/IEC 17024 standard outlines requirement for bodies operating certification of persons. There are other types of credentialing programs such as training certificates, apprenticeship, standardized tests (SAT, GRE, TOEFL) and assessment programs that cannot be accredited under this standard.*

For each of the following cases, determine if the program falls with the scope of accreditation under ISO/IEC 17024.

1 An educational institute offers a program, "Introduction to Marketing Management". All the students have to participate in a six-week classroom training and demonstrate competence by passing a comprehensive examination that shows attainment of course learning outcomes. The program was developed with the involvement of industry experts and educators. The program is competency based and assesses knowledge, skills, and attributes required for practice. The program does not have any ongoing requirements; however, the students are eligible to enroll in an advanced marketing management course.

ANSWER: This program is a training program with assessment and does not fall within the scope of accreditation under ISO/IEC 17024.

2 A cyber security-training institute has developed a program, "Cybersecurity Expert". All applicants must meet three eligibility requirements to enroll in the program, namely (a) must be 18 years or older (b) earned a bachelor's degree in computer science or related field, and (c) have minimum 5 years of work experience in IT. The program involves participation in six month training, passing a comprehensive examination and fulfilling annual training activities to demonstrate continued competence.

ANSWER: This program is a training program with assessment and does not fall with the scope of accreditation under ISO/IEC 17024.

3 An employment testing agency has developed a test to determine the competence of HR professionals. The test was developed as per certification scheme requirements of clause 8 of ISO/IEC 17024. An individual who scores 90% in this test is awarded a diploma. The diploma only has an issue date and there is no period of validity.

ANSWER: This program is a competency based exam but not a certification of persons as per ISO/IEC 17024.

4 A certification body conducts promotion exam to verify technical competence of government staff. The program does not involve recertification as individuals have to apply for higher-level promotion exam when the meet the stipulated experience requirement.

ANSWER: This program does not include recertification and hence, would not meet ISO/IEC 17024 standard.

5 A certification body has developed a program to recognize experts in the field of biomedical engineering. In order to receive the certificate applicants must meet the following pre-requisites: (a) Hold a Master's degree in biomedical engineering (b) 20 years of work experience (c) made a significant contribution to the field by research, publication, service.

ANSWER: This program does not meet the definition of a certification program as per ISO/IEC 17024.

6 A state licensing agency administers a test for teachers in the state. All teachers are required by law to hold a valid license issued by the state to teach in a public school. In order to take the test an applicant must have relevant educational qualification (Bachelors or Master's degree) and secure 70% marks. The license is valid for 3 years.

ANSWER: This program does not meet the definition of a certification program as per ISO/IEC 17024. The test for license does not have a recertification requirement.

Responsibility for decision on certification *(Clause 4.2)*

CASE STUDY

Clause 4.2 – The certification body shall be responsible for, shall retain authority for, and shall not delegate, its decisions relating to certification.

ABC is a non-profit organization governed by a Board of Directors. The ABC Board has established the Certification Council and granted authority to the Certification Council to independently make decisions relating to certification including granting, maintaining, and recertifying. The Certification Council is made up of volunteer leaders representing different stakeholder groups. The decisions by the Certification Council are made independently of, and under no influence by, any other individual or business entity within or outside of ABC.

The Certification Council is responsible for the development of the requirements for eligibility, examination, and re-certification for the certification programs as established in the ABC Bylaws. The Certification Council has developed the certification program to increase the quality of patient care by recognizing competent central service technicians, instrument specialists, and healthcare leaders.

DISCUSSION QUESTION: If ABC delegates the responsibility for decision on certification to the Certification Council does it violate 4.2 since all the Certification Council members are volunteers and not employees of ABC?

ANSWER: In this example, the ABC Board has established the Certification Council and granted authority to the Council to make certification related decisions. The delegation of authority to the Certification Council should be included in the bylaws of ABC Board. Even though the Certification Council consists of volunteers, the Council is making certification related decision as per the delegated authority of ABC Board. It does not matter whether the Certification Council consists of volunteers or full time employees.

The standard requires that a certification body shall retain authority over all certification decisions. Consequently, a certification body cannot delegate its decisions relating to certification. The standard classifies all certification activities into two types (a) Decisions relating to certification (b) Operational activities relating to certification.

Decisions relating to certifications	Operational activities relating to certifications
Granting certification	Application processing activities
Withdrawing certification	Test administration activities
Reducing the scope of certification	Test development activities
Recertifying	Activities relating to development of certification scheme
Expanding the scope of certification	Records management
Maintaining the certification	Website management
Suspending the certification	Internal audit
	Premises, including examination sites, equipment and resources for carrying out its certification activities

A certification body can decide whether it wants to perform the operational activities in-house or outsource it to an external consultant or firm/s. If the certification body decides to outsource (contract/subcontract) operational activities then it would need to ensure that all the outsourced activities conform to clause 6.3 of the standard.

Management of impartiality *(Clause 4.3)*

CASE STUDY

An education university has created a separate assessment center to offer independent certification programs. The university received a large grant from a corporate donor to create the assessment center. The corporate donor in on the board of trustees of the university as well as the certification board.

The university offers several educational programs. The university does not offer any specific training for any of the certifications that it offers. The university does not offer any study guides or exam preparation materials. The university faculty members routinely participate in the job task analysis conducted by the certification board however; they do not have access to the examination. A few university professors write exam questions for the certification program. However, an independent examination committee reviews the submitted examination questions and decides if any of the test items should be on the test. A few university professors also serve as examiners for exams that they have not taught in the past two years. All students who are enrolled in the university have to pay a discounted examination fee for the certification examination. The certification body is located within the university premises. The certification body utilizes the faculty who teaches psychometrics to conduct the examination analysis. All examinations are offered on the university campus and administered by independent invigilators/proctors. The university also provides marketing and communication support to the certification body.

Identify threats to impartiality as per clause 4.3.6 of ISO/IEC 17024 and describe steps to mitigate or eliminate those threats.

Structure of the certification body in relation to training *(Clause 5.2)*

A A certification body has created a fully owned separate legal entity to offer training. The certification body felt that creating a separate legal entity was important as offering training and certification within the same legal entity constitutes a threat to impartiality. The primary reason to create the training institute was to provide high quality training since all the other training programs related to the certification program are of questionable quality. The certification body wants to require this training in order to take the certification examination as an exclusive prerequisite as all other training are of poor quality and do not met the industry standards. The certification body believes that it has eliminated threats to impartiality as the training and certification is not offered within the same legal entity. Is it acceptable for the certification body to require a specific training from a sole approved training provider?

ANSWER: The certification body cannot not require the candidates to complete the certification body's own education or training or a by a related entity as an exclusive prerequisite when alternative education or training with an equivalent outcome exists;

Development of the Certification Scheme *(Clause 8)*

A ISO (International Organization for Standardization) has developed a standard that identifies the knowledge, skill, and attributes for people involved in the field of non-destructive testing.

a) Is it acceptable for a certification body to use a standard developed by an external scheme owner such as ISO?

ANSWER: It is acceptable for a certification body to use a standard developed by an external scheme owner such as ISO provided the standard complies with all the scheme requirements under clause 8 of ISO/IEC 17024

b) What happens if a standard developed by an external scheme owner such as ISO does not meet all the requirements as per clause 8 of ISO/IEC 17024.

ANSWER: A standard whether developed the certification body or by an external scheme owner would not meet the standard unless all the requirements under clause 8 are met.

ISO has developed guidelines on developing a certification scheme as per clause 8 of ISO/IEC 17024. The guidance document is available at no charge on the ISO website.

As per the standard where the certification scheme has been developed by an entity other than the certification body, the job or practice analysis might already be available as part of that work. In this case, the certification body can obtain details from the scheme documentation for verification.

CASE STUDY: Application of ISO/IEC 17024 American Society for Clinical Pathology Board of Certification

American Society for Clinical Pathology Board of Certification (ASCP BOC) established in 1928 offers certification for medical laboratory professionals. BOC Certifications and qualifications are offered in a number of disciplines and technical areas. Individuals who sit for either a certification or qualification examination are required to meet specific academic and clinical requirements and achieve a predetermined competence level. BOC has certified over 525,000 individuals in the field.

The BOC certification is accepted for licensure purposes provided the individual meets all other licensure requirements. Certain U.S. states Requirements for licensure are established by each licensure state and must be met in order to become licensed in that state. Successful certification by the BOC does not automatically grant an individual a state license.

Understanding ASCP BOC Certifications

Purpose of a Certification Program

The purpose of a certification program is to ensure minimum competency of an individual to perform their job safely and thereby protect the public. A certification provides a determination that an acceptable level of competence has been achieved by an individual who possesses the minimum qualifications to be eligible to sit for the certification examination.

ASCP BOC Certification Examination Committees

ASCP BOC certification examination committees and their members provide subject matter expertise for the certification examinations. The members are selected to represent diversity in job type (i.e. educator, bench technologist/technician, and management), geographic location, facility type and experience. The diversity provides a broad spectrum of current practice in the profession across the country. Anyone wishing to volunteer for an exam committee can go to http://www.ascp.org/Board-of-Certification/Volunteer. When vacancies occur, the committee reviews C.V.'s for volunteers fitting the requirements needed (i.e., educator from the east coast, technologist from a reference lab on the west coast, supervisor at an academic facility).

An ASCP BOC certification examination committee's primary responsibility is to validate the content of the certification examination. They do so by periodically administering practice analysis surveys, writing and reviewing items, performing exam database maintenance, periodic standard setting and review of psychometric and statistical analysis of the exam items/database. The committees meet annually to review and perform maintenance on the certification exam database(s).

Practice Analysis and Certification Examination Development

The purpose of conducting a practice analysis is to define practice in a profession. Practice analysis surveys define the actual tasks that practitioners must be able to perform at the time of certification. The practice analysis provides the foundation for the certification examination. It also ensures the certification is fair, job related and most importantly, legally defensible. The practice analysis provides evidence of content validation and is required by psychometric research (i.e., AERA) and is considered best practices for high stakes examination development. In addition, professional standards used by accreditation (i.e., ANSI) as well as legal statutes and guidelines utilize the practice analysis to evaluate the validity of certification programs.

The practice analysis process begins with the development of a comprehensive list of tasks needed for current practice in the field by subject matter experts. This list is placed into survey format along with a rating scale and demographic questions. The practice analysis survey is then distributed to practitioners. The data is analyzed and the exam committee reviews the data to determine which tasks will be included when developing the content guideline and subsequently the examination database. All exam items are linked to a content area on the content guideline.

Standard Setting Study (Cut-Score Determination or Benchmarking)

The purpose of a standard setting study is to determine the minimum standard for passing the examination. A standard setting study is performed for new certification examinations, after analysis of a practice analysis survey or to benchmark an

existing certification program. Dr. Gregory Stone, Professor of Research and Measurement at the University of Toledo noted, "Criterion-referenced standards, used in high-stakes testing, are designed to represent both a specific set of knowledge, skills, and abilities deemed critical for success and a level of test-taker performance within that set of abilities."

ASCP BOC uses the subject matter expertise of the exam committee members to define minimal competence on each exam and determine the core knowledge essential to competently perform the job. The experts are asked to make an inference about a minimally competent individual's ability to answer exam items correctly on an exam. This information is analyzed and used to determine a new standard or a cut-score**. Implementation of a new standard will impact population and individual examination statistics (i.e., increasing or decreasing pass rates, raising or lowering mean scores, raising or lowering program scores).** As mentioned earlier, standard setting studies are periodically implemented to validate the standard for minimum competency and thus validate test scores.

Computer Adaptive Testing (CAT)

The ASCP BOC uses criterion-referenced computer adaptive testing (CAT) and have been using this testing algorithm for the certification examinations since 1993.

Each ASCP BOC certification examination administers questions according to the examination content guideline. For MLS, as of January 1, 2015, an examinee will have the following proportion of questions on their exam (i.e., 17 – 22% for Blood Bank, Chemistry, Hematology, etc.) Please note, the questions are not administered in groups (i.e., all of the blood bank items administered sequentially) but are administered based on item difficulty, could be from any of the content areas, and follow the exam content percentages. In other words, an examinee could start with a microbiology question, followed by a chemistry question, followed by a hematology question, and so on until the end of the exam.

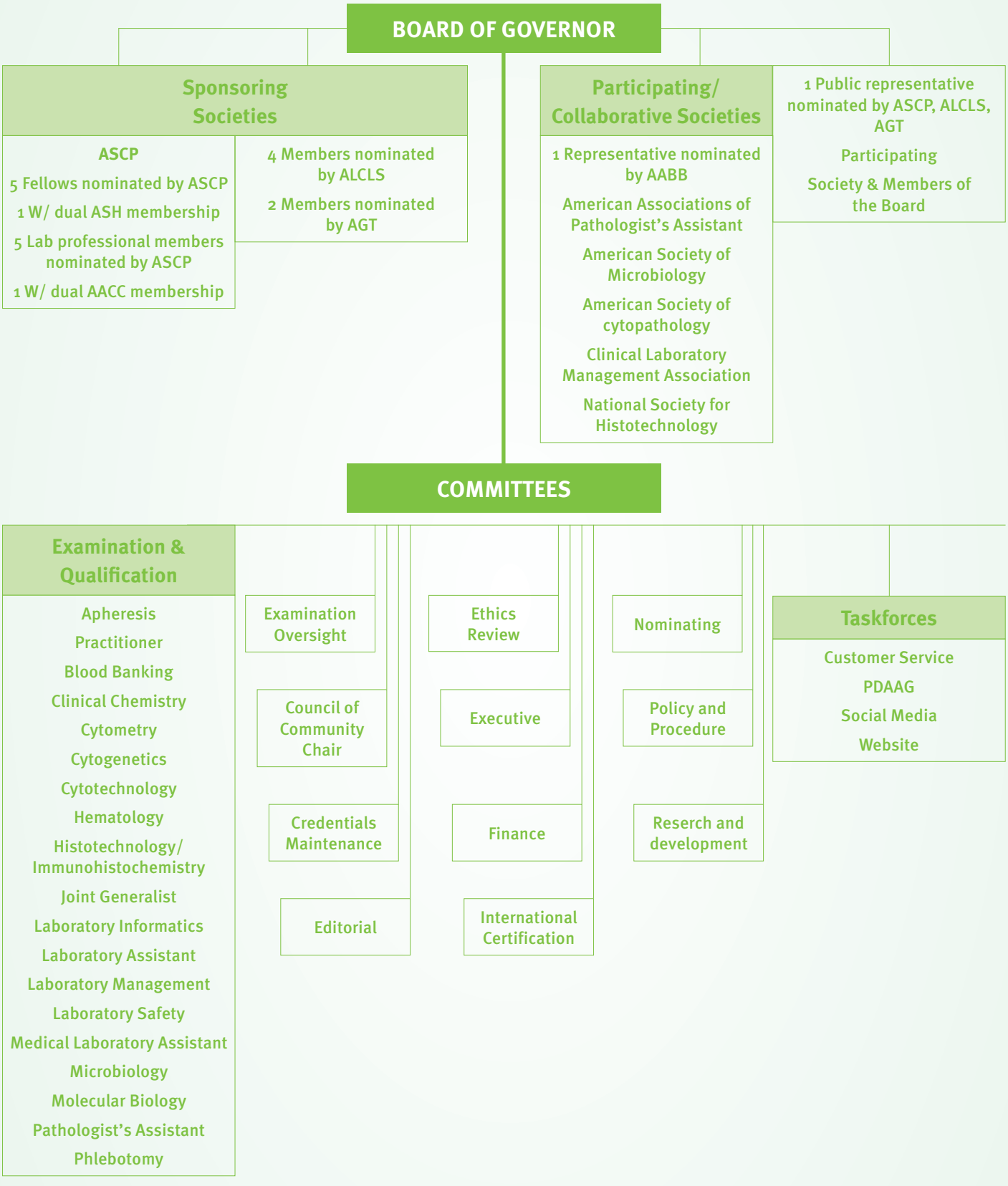
All of the certification examinations contain experimental or field test questions. These questions do not "count" and are not used to calculate the examinee's examination score. This is a common practice in national examination programs and is necessary to test new questions and also to ensure the validity of the examinations. The time allotted for testing includes adequate time to complete the field test questions and the examination questions. Because this is a CAT exam, the items administered to an individual from a particular content area (i.e., microbiology) is dependent on the examinee's ability level. It is very possible for an individual to get a disproportionate number of mycology questions as opposed to general/routine microbiology questions or vice versa. If an individual is doing well on the exam, they could get a number of mycology questions because these tend to be the more difficult questions in the microbiology content area. For example, a question about the coagulase reaction of a *Staphylococcus aureus* is a very easy question and would not be helpful in determining an individual's ability level if given to an individual who has answered questions of higher difficulty. In this case, a question about *tinea capitis* might be the better question to challenge this individual. The premise of CAT is to more quickly assess an individual's ability by giving them well-targeted items.

BOC Certification Examination Scores and Ranking

The goal of a certification program is to identify individuals who achieve the predetermined level of competency and to confirm whether a candidate has exhibited a proficiency level at or above the minimum competency level. **Simply put, did the candidate achieve a pass or fail on the certification examination or even simpler, is the candidate certified.**

Properly designed and developed certification examinations identify and classify candidates into either a classification of competent or not competent. Certification bodies are not concerned with how candidates perform relative to one another but rather how the candidates perform relative to the minimum passing score. Examination scores should not be used for alternative purposes other than determining minimum competency. Examples of alternative purposes can include using passing scores to compare candidates for hiring or promotion purposes or to rank candidates in a particular exam category over a specific time period. It is not valid to use candidate scores for these alternative purposes. In order to use certification scores for these alternative purposes, one would have to do a validation study using external variables, demonstrate reliability of external criteria and thus support the validity argument. These studies are rarely if ever performed and if done, have not supported the validity argument.

BOARD OF CERTIFICATION GOVERNANCE



CASE STUDY:
Application of ISO/IEC 17024
Establishment of Persons' Certification Body in Nigeria – a Case Study of IPAN-SoTLAN Conformance Systems Limited

Nigeria is a middle-income country with an emerging market, with expanding manufacturing, financial, service, communications and technology sectors. It is the largest economy in Africa and the largest producer of goods and services for the West African region.

In addition to the largest petroleum industry of the continent, which contributes about 90% to the country's economy, there is a strong political will to diversify the Nigerian economy, with particular focus on agriculture, energy, manufacturing and key services by leveraging science and technology. Micro, small and medium enterprises play a crucial role in this endeavor, being the key to Nigeria's economic recovery and diversification.

The National Quality Infrastructure Project (NQIP), www.nqi-nigeria.org, is the result of the financial agreement between the European Union (EU) and the Federal Republic of Nigeria to stimulate the competitiveness of non-oil sectors in the country under the 10th European Development Fund (EDF). The executing agency of the project is the United Nations Industrial Development Organisation (UNIDO).

The main difficulties in the quality sector in Nigeria have been the lack of commitment by all levels of government in creating an enabling environment and the uncoordinated activities, avoidable overlaps and duplication of efforts by various national regulatory bodies.

Although professional practice and professionalism have developed over the years in Nigeria since independence in 1960, quality activities and programs have been carried out using the available rules and regulations of regulatory and professional organizations, which are national and a far cry from international standard hence they are neither recognized nor accepted internationally.

NQIP's five components have been designed to tackle these challenges:

1. an enabling institutional and legal framework guided by a National Quality Policy (NQP)
2. an internationally recognized national accreditation body (NAB)
3. a National Metrology Institute (NMI) accredited for its key services
4. conformity assessment bodies (CABs) within the private sector, and
5. enhanced consumer protection capacities - to raise awareness and promote quality

In connection with component #4, UNIDO established strong connections with IPAN (Institute of Public Analysts of Nigeria), the regulating agency for laboratory professionals, since there was an urgent need to further improve the quality of its services and credibility. UNIDO NQIP briefed IPAN management about the benefits of creating an independent personnel certification body and an action plan was prepared by UNIDO's international expert and validated by a committee. The action plan consists of four segments:

- ✓ evaluation and preparation phase
- ✓ documentation of personnel certification as per ISO 17024
- ✓ trainings, competence building and system implementation, and
- ✓ accreditation of personnel certification system

Based on the agreed action plan and according to the requirements of ISO 17024, the activities executed by the committee and later by the management representative, under the technical supervision of the Chief Technical Adviser (CTA) for UNIDO NQIP, are presented in the following case study.

1. Evaluation and Preparation Phase

1.1 Gap Assessment

The Committee commenced work immediately it was constituted and held series of meetings with the UNIDO CTA, the Committee carried out a gap assessment of IPAN Professional Examination program against ISO/IEC 17024:2012 requirements and the findings was that 50% of the requirements are in place at IPAN but they did not meet the requirements and there was no formal documentation of the various procedures.

Thereafter, the gap assessment was sent to UNIDO with the request for the assistance in the following areas in order to fully meet the requirements of ISO/IEC 17024:2012:

- Organizational restructuring to meet the requirements of a certification body;
- Restructuring of the present program and conversion of the curricula into certification schemes;
- Upgrade of the ICT infrastructures for online certification programs;
- Technical support for training of staff, trainers and assessors on the implementation of ISO/IEC 17024:2012 standard.

Also, as requested the following documents were sent to UNIDO NQIP: list of training courses; curriculum detail of courses; profile of some trainers; examination paper sample for courses; examination procedure/process flow; sample of membership certificate and practice license.

After receiving these information and upon the evaluation mission and gap analysis as per ISO 17024 by UNIDO CTA, he recommended that in order to establish IPAN Certification Body, 50% of the requirements which has been made available by IPAN will be aligned with the international requirement while the remaining 50% will be developed.

1.2 Legal Status

One of the major challenges which confronted the committee was how to fulfil the legal requirement to put a fire wall and separation in between IPAN and SoTLAN activities of the proposed Certification Body when it was impossible to establish the Certification Body under the legal framework of either IPAN or Society of Testing Laboratory Analysts of Nigeria (SoTLAN).

The Committee encountered various difficulties during the process of registration of the name and objectives of the body with the Corporate Affairs Commission (CAC) after the names and objectives recommended by the committee were approved by the IPAN Presidential Committee.

However, the efforts of the Committee yielded the expected result on February 12, 2016 when IPAN-SoTLAN CONFORMANCE SYSTEMS LIMITED was issued a Certificate of Incorporation by the CAC.

Following the fulfilment of the legal requirement of the ISO 17024 Standard, UNIDO requested for a weekly meeting with the Committee in order to accomplish specific tasks every week, considering that a lot of time will be required for training, capacity building, writing procedures, finalising the quality manual and development of procedures for all applicable Clauses in the ISO Standard.

2. Documentation of Personnel Certification as per ISO 17024

In accordance with the requirements of ISO 17024 Standard, 17 Standard Operating Procedures (SOPs) and approximately 48 Formats were developed and they include among others - SOP for Certification Process; Management of Impartiality; Examination Process & Requirement of Examiner; Assessment Process & Requirements for Personnel Involved in Assessment; Outsourcing; Control of Records; Confidentiality & Security; Appeals and Complaints; Control of Documents; Management Review; Internal Audits; Corrective Actions; Preventive Actions; Suspending, Withdrawing, reducing the scope Certification and Recertification; and Use of Certificates, Logos & Marks.

Also, the Quality Policy for IPAN-SoTLAN was formulated while the Quality Manual was developed. These documents were reviewed and subsequently approved as required.

3. Certification Scheme – Analytical Laboratory Analysts

This is actually the marketable product of the Organization, following the requirements of ISO 17024 Standard, the following four categories of certification were developed:

3.1 Categories of Certification:

1. CERTIFIED Testing Laboratory Technician (CTLT)
2. CERTIFIED Pupil Laboratory Analyst (CPLA)
3. CERTIFIED Senior Laboratory Analyst (CSLA)
4. CERTIFIED Principal Laboratory Analyst (CPrLA)

3.1.1 Scope of Certified Testing Laboratory Technician (CTLT)

Testing Laboratory Technician (TLT) candidates should be acquainted with the fundamentals of analytical science and basics of analytical laboratory practices.

Testing Laboratory Technician (TLT) Certification is designed to demonstrate competency at the fundamental working level. It implies competence in the knowledge, skills and abilities required to perform the core duties of a skilled technician in an analytical laboratory sector.

3.1.2 Scope of Certified Pupil Laboratory Analyst (CPLA)

Pupil Laboratory Analyst (PLA) candidates should be acquainted with the basic disciplines of analytical science and rudiments of analytical laboratory analysis.

Pupil Laboratory Analyst (PLA) Certification is designed to demonstrate competency at the entry and basic working level. It implies competence in the knowledge, skills and abilities required to perform the core duties of an entry/basic level and semi-skilled analytical laboratory analyst.

3.1.3 Scope of Certified Senior Laboratory Analyst (CSLA)

Senior Laboratory Analyst (SLA) candidates should be acquainted with the theory, principles and applications of techniques applicable to analytical laboratory and microbiological analyses.

Senior Laboratory Analyst (SLA) Certification is designed to demonstrate competency at the lead/advanced technical level. It implies competence in the knowledge, skills and abilities required to perform the core duteis of an advanced and skilled analytical laboratory analyst.

3.1.4 Scope of Certified Principal Laboratory Analyst (CPrLA)

Principal Laboratory Analyst (PrLA) Certification is designed to demonstrate competency at the well advanced/highly skilled and managerial working level. It implies competence in the knowledge, skills and abilities required to perform the core duties of a highly skilled analytical laboratory analyst and/or manager/supervisor.

4. Administration of First Certification Examination

Upon the implementation of the above Scheme, forty applications in three categories were successfully assessed and approved to register for the first certification examination in February 2018 and eighteen of these applicants actually took the examination after meeting all the requirements and paying the prescribed fees.

5. Trainings, Capacity Building and System Implementation

To develop capable and competent personnel for system implementation, the following trainings were carried out by UNIDO CTA:

- Training on ISO 17024 for thirty participants;
- Awareness training on ISO 17024 for members of the Board of Directors;
- Scheme Development Training;
- Internal Audit Training as per ISO19011 and ISO 17024.

In addition, the management representative undertook a study tour of management systems of three Certification Bodies in the USA and a training on ISO 17024 by a US Accreditation body, ANSI. These trainings and study tour (with support of ANSI) were instrumental to the successful implementation and good record keeping of the Procedures and Formats in line with the Standard.

Other activities which were carried out were the following: - website development; internal audit; closure of nonconformities raised during the internal audits; and management review.

6. Committees and their Terms of Reference

In line with the level of operations and the activities of IPAN-SoTLAN, the following committees with the stated Terms of Reference were constituted:

6.1 Impartiality Committee

The Committee's Terms of Reference which comprises of Clause 4.3 of ISO/IEC 17024: 2012 are to:

- *Implement the organization's policies and procedures to safeguard impartiality and ensure that certification activities are undertaken impartially;*
- *Identify threats to impartiality on an ongoing basis;*
- *Identify all potential sources of conflict of interest in order to eliminate, minimize or manage their negative effects on certification activities.*

6.2 Scheme Development Committee

The Terms of Reference which comprises of Clause 8 of ISO/IEC 17024: 2012 are to:

- *Develop a Certification Scheme to meet current professional demands and market place requirements in line with ISO/IEC 17024: 2012;*
- *Develop the Certification Scheme for each category of Certification;*
- *Ensure that elements of the Certification Scheme are in accordance with Clause 8.2 of the standard;*
- *Ensure that the certification process requirements of the Certification Scheme are in line with Clause 8.3 of the standard.*

6.3 Examination Committee

The Committee's Terms of Reference which comprises of Clause 9.3 of ISO/IEC 17024: 2012 are to:

- *Implement the organization's policies and procedures with regard to examination process to ensure consistent examination administration;*
- *Access competence based on, and consistent with, the Certification scheme, by reliable and objective methods*
- *Design the examination requirement to ensure the comparability of results of each single examination, both in content and difficulty including the validity of fail/pass decisions;*
- *Establish, document and monitor criteria for conditions for administering examinations*

6.4 Appeals and Complaints Committee

The Committee's Terms of Reference which comprises of Clause 9.8 and 9.9 of ISO/IEC 17024: 2012 are to:

- *Take charge of appeals, grievances and complaints from applicants, examination candidates and certified persons in order to ensure that they are addressed on case to case basis.*
- *Review appeals regarding any decision made by IPAN-SoTLAN as it applies to an applicant, candidate or a certified persons, including, without limitation, to the following: Declined exam application; Failing score on an exam; Denial or revocation of certification for any reason; Action in response to a test center complaint; and Failure to meet Professional Development activities requirements*

7. Accreditation of Personnel Certification System

This is the climax of the establishment of IPAN-SoTLAN certification body and an external verification of the implementation of procedures and systems by an accreditation body to ensure compliance with the requirements of ISO/IEC 17024: 2012 Standard.

It involves mock assessment and preparation for application; application for accreditation; contracting of accreditation body; off-site and on-site assessments; closure of nonconformities raised during assessment by accreditation body; and ultimately the aAccreditation of the IPAN SOTLAN on ISO 17024 and issuance of certificate of accreditation as the final output of the whole activities and processes.

8. CONCLUSION

Thanks to the support of the European Union through the National Quality Infrastructure Project and upon full implementation of all the systems and successful accreditation, IPAN-SOTLAN Conformance Systems Limited (www.ipan-sotlancb.com) will be well positioned to contribute to the development of the capacities of laboratory analysts/analysis and quality infrastructure in Nigeria because it is not only the first Nigerian personnel CB but also the first in the entire ECOWAS region.

CASE STUDY: Creating a Mutual Recognition Agreement

Goldsmith, S. The Millennium Intent: A Case Study in Assuring Quality International Standards in Education Health Care Professionals in *Quality Transnational Education, UNESCO CEPES European Center for Higher Education, Vol. XXVII: No 3, 2002, p 231*

This project created an agreement between non-governmental national certification agencies in Australia, Canada, United Kingdom, New Zealand, Ireland and the United States for mutual recognition of professional education and credentials of speech/language pathologists. It established a mechanism for individuals credentialed by any of the organizations to be certified/licensed by the other organizations.

The process was initiated by ASHA, the US national professional and credentialing organization representing more than 100,000 audiologists and speech/language

pathologists ASHA certification is required by many employers and reimbursement agencies and is recognized as meeting the qualifications for license to practice by almost all licensing agencies in the US. Prior to 1992, ASHA made a commitment to internationalize its certification program. It did this to be responsive to requests from the academic community that wanted to internationalize clinical training opportunities and to be responsive to requests from employers that were eager to hire appropriately credentialed non-US educated professionals.

In 1992, ASHA's Council on Professional Standards created a program of endorsement of credentials based on certain principles. This program permits ASHA to recognize certification granted by another agency if certain conditions are met, including:

- Substantial equivalence of the standards of the two agencies regarding:
  - Degree requirements;
  - Academic and clinical education;
  - Program accreditation;
  - Professional experience; and
  - Formal examination.

- Assurance that the agency is a nationally recognized and respected authority for certification in audiology and/or speech/language pathology in its home country;

- Assurance that the agency develops and applies its standards objectively and fairly.

Once the principles were agreed to, ASHA faced several practical implementation concerns including:

- How to craft and update agreements;
- How to create procedures to determine evidence of substantial equivalence and national recognition;
- Procedures for maintaining certification granted under endorsement programs.

The Canadian counterpart to ASHA (CASLPA) had been requesting the opportunity to discuss some sort of formal agreement between the two organizations.

Negotiations, based on the principles of endorsement developed by ASHA, began between CASLPA and ASHA. At these sessions, there was extensive discussion on terminology, scope of practice and on the standards addressing academic and clinical preparation, degree tag, national exam and other issues. As an example, the testing agencies released live exams so that test specialists from each testing agency could analyze the other's exams for equivalency in breadth and depth of content across the scopes of practice in each profession and report back to the chairs of their respective certification boards.

It appeared that scopes of practice were generally equivalent and that there might be opportunity for mutual recognition regarding some critical certification requirements such as academic and clinical course work. It was clear that some of the other standards would require more discussion in order to satisfy all negotiators on issues relative to substantial equivalence. A formal mutual recognition agreement between ASHA and CASLPA was signed in November 1997 and is still in effect.

In response to the successful negotiations concluded between CASLPA and ASHA, other countries that had expressed an interest in these negotiations were invited to participate. It was determined that it would be helpful for each agency to make a multi-year commitment to the negotiation process. Signers of this agreement, entitled "*The Millennium Intent*", would be agreeing to commit resources to support representation to the negotiating sessions. This was an agreement to negotiate—not a commitment to agree to the results of negotiations. The results, once deemed satisfactory to the negotiators, would come back to the organizations for endorsement.

The *Millennium Intent*

1. Identified similarities and differences in the specification and/or measurement of competence by the different professional bodies, and established a set of commonalities that constitute an adequate basis for qualifications of speech/language pathologists and that might serve as a measure of the substantial equivalence of certification/license to practice/eligibility for membership, across the four countries.

2. Agreed on how differences in scope of practice across countries might be accommodated alongside the recognition of qualifications of speech/ language pathologists. This would include reaching agreement on which differences do not compromise the criterion of "substantial equivalence" and on mechanisms whereby those that do might be addressed.

3. Agreed on whether certification/license to practice/ eligibility for membership requirements of speech/ language pathologists in one country might be recognized as a reliable and valid criterion for granting certification/ license to practice/membership in another country.

4. Agreed on a process to monitor changes in the standards for practice of speech/ language pathology in the respective countries and a process for renegotiating any accord actioned by the agreement.

5. Identified and excluded from further debate any approaches to mutual recognition which for practical, political, professional, legal or regulatory reasons can have no favorable outcome, or which may unreasonably exclude other professional bodies.

The process also allowed accommodation of additional countries that may wish to join. Two additional countries became parties to the Mutual Recognition Agreement several years after the original agreement was developed.

It is important to note that the mutual recognition did not simply allow applicants to automatically receive certification from all the agencies that are party to the agreement. Applicants must still apply and pay requisite fees to each organization they are seeking certification from. In addition, substantial equivalence was identified for most but not all of each certifications organization's eligibility requirements so additional requirements may need to be met. . For example, as CASLPA and ASHA have equivalent examinations, individuals holding CASLPA certification would not have to take the ASHA examination--however applicants for ASHA certification from the UK (that does not require an equivalent examination), are required to sit for the ASHA examination.

In addition to creating a system to evaluate equivalency of academic and clinic preparation, the mutual recognition agreement is achieving the following outcomes:

- assisting the academic community, continuing education providers, industry and the public by identifying common standards of clinical competence;

- facilitating the ongoing exchange of knowledge as it relates to such pertinent topics as research findings, continuing professional development, emerging technologies, etc.;

- promoting greater international understanding of the role of speech/language pathologists;

- providing a basis for the inclusion of other interested countries in the reciprocal recognition of qualifications;
- improving the mobility of individuals with approved credentials for international employment;

- responding to respective governmental interests in reducing trade barriers; and

- streamlining the mutual recognition process.

CASE STUDY:
General Guiding Principles for Good Practice in the Assessment of Foreign Credentials

Principles

Assessment should be performed without any form of racial, religious, political, or sexual discrimination.

1. *Holders of foreign qualifications should have adequate access, upon request, to an assessment of their foreign qualifications.*

2. *The procedures and criteria used in the assessment of foreign credentials should be clear, rational, and reliable. The methodology recommended aims to make assessment procedures consistent and clear and to ensure all applicants receive a fair consideration of their application.*

3. *Procedures for the evaluation of foreign credentials should be periodically reviewed with a view to increasing clarity and eliminating, when possible, requirements leading to undue complications in the procedure.*

4. *The general approach to foreign credentials and how they are compared to a particular system should take into account the diversity of educational traditions in the world.*

5. *The same basic methodology should apply whether the statement is for:*

1. *general employment purposes*
2. *entry into secondary and postsecondary institutions*
3. *entry into a regulated occupation*

Assessment criteria for the evaluation of foreign credentials have been elaborated with a view to increasing consistency and with the objective of treating similar cases in a reasonably similar manner. It is recognized nevertheless that a margin of flexibility in making decisions is essential and that decisions may vary according to the provincial/territorial system of education. Guidelines for Assessment Procedures and Criteria

General procedure

8. *The evaluation of a foreign credential should:*

   a. *situate the credential within the framework of the education system to which it belongs, taking into account its relative place and function compared to other credentials in the same system;*
   b. *identify the level and type of credential in the system of the country in which recognition is sought that is most comparable to the foreign credential, taking into account the purpose for which recognition is sought;*
   c. *determine whether similarities between foreign and domestic credentials are sufficient for recognition.*

9. *The evaluation should take into account past practices in similar cases in order to ensure consistency in recognition practice. Past practice should be recorded in an inventory and used as a guideline for making consistent decisions. Substantial changes of practice should be justified and recorded.*

10. *Assessment decisions are based on the information available to the assessment service at the time the assessment is performed. Further information may result in the modification of the assessment decision.*

Processing time and delay

11. *The time normally required to process evaluations should be specified. The time is counted once all relevant information has been provided by applicants and/or educational institutions. In cases of substantial delay, the assessment service should inform applicants of the reasons for the delay and, if possible, the time required to review the credential.*

Information requirements

12. *The assessment process should provide standardized information on the procedures and criteria for the evaluation of foreign credentials. This information should automatically be given to all applicants as well as to persons making preliminary inquiries about the evaluation of credentials, including the following:*

a. *the documentation required and requirements related to the authentication and translation of documents*
   b. *the role of professional associations and educational institutions in the recognition process*
   c. *the status of the assessment statement*
   d. *the approximate time needed to process an application*
   e. *the fees charged*
   f. *the process for appealing decisions*

13. *The responsibility for providing information is shared by the assessment service, the applicant, and the educational institutions where the qualifications in question were earned.*

   a. *The assessment service is responsible for providing the applicant with complete information regarding its requirements for credential assessment.*
   b. *The assessment service is responsible for maintaining a system of information on educational systems.*
   c. *The applicant is responsible for providing documents and information required for the assessment.*
   d. *Educational institutions are responsible for providing information about credentials earned at the institutions and other relevant information, such as course content, program structure, etc.*

Fees

14. *The fee for the evaluation of foreign credentials should be kept as low as possible.*

15. *When possible, special measures aimed at persons with limited income and other disadvantaged groups should be considered in order to ensure that no applicant is prevented from seeking assessment or recognition of his or her foreign credentials because of the cost involved.*

Translation

16. *Translation should be limited to key documents.*

17. *Original documents, including the titles of foreign qualifications, should be provided in the original language.*

Document Requirements

18. *Original/official documents or certified copies of documents are normally required for evaluation. If photocopies are accepted, this should be clearly indicated on the assessment certificate.*

19. *Documents that clearly indicate successful completion of an academic year are required for evaluation. Educational documents that indicate failed or unsuccessful completion of an academic year or program should not be considered.*

20. *In some exceptional cases, such as for refugees and others who are unable to document their qualifications for good reasons, sworn statements before a legal authority may be accepted in lieu of full documentation.*

21. *All submitted documents should be examined for evidence of tampering or misrepresentation. Original documents and certified proofs of academic achievements should be examined by evaluation officers to verify their authenticity.*

22. *The presence of fraudulent or altered documents should lead to refusal to issue an evaluation report. A verification by the issuing institution or authority in the country of origin should be conducted if it is suspected that documents have been altered or falsified. Further evaluation should not be carried out if it is found that documents have been falsified in any way.*

Status of institutions and programs

23. *In view of the wide diversity of educational institutions, the status of a credential should not be established without taking into account the status of the program and institution at which the credential was earned.*

24. *Credit should only be considered for education attained through recognized institutions. A recognized institution is one that has been formally recognized by competent authorities in a country and/or that is widely accepted by other institutions and agencies inside or outside the country.*

25. *A credential should be recognized only if the related program is also recognized by a competent authority. Recognition of an educational institution does not guarantee the recognition of all credentials issued by that institution.*

Purpose/outcome of assessment

26. *Every credential issued at a specific date from a specific educational institution should have a consistent evaluation outcome. Since the same data and criteria are used to establish the level of each credential, the evaluation outcome for a specific credential should be consistent.*

27. *Credential evaluation should take into account the purpose for which recognition is sought, and the evaluation statement should clearly indicate the purpose for which the statement is valid.*

28. *Depending on practice, the outcome of the evaluation of a foreign credential may take the form of a statement to the applicant that will provide:*

    a. *advice for general employment purposes*
    b. *advice to an educational institution for admission into its programs*
    c. *advice to a regulatory body for entry into a trade or a profession*

Level of study

29. *The assessment of a given credential should be based entirely on the normal entry and completion requirements for that credential. The evaluation outcome should not vary because of any previous studies taken by the individual for whom the credential is being evaluated.*

30. *The assessment of a given credential should be based on the entry and completion requirements in place when that credential was completed.*

31. *Each credential presented by an individual should be assessed separately.*

32. *Credentials at the same level in different programs should not be added together to equate a credential at a higher level of study.*

33. *The evaluation should be based on the credentials presented for evaluation and should not cite the completion of prerequisite credentials if those prerequisite credentials are not presented for the evaluation.*

Assessment criteria

34. *A variety of criteria should be applied to determine the level and type of educational programs, including:*

    a. *entrance requirements (e.g. What are the normal admission requirements for entrance to the program? What is the level of studies in the home country?)*
    b. *full-time duration of study program (e.g. What is the normal full-time duration of the program?)*
    c. *structure of program (e.g. How is the program structured? What type of program is it, such as vocational, academic, etc.?)*
    d. *contents of the program (e.g. In what discipline of studies? What courses? How many hours of studies?)*
    e. *purpose of degree (e.g. For what purpose was the program completed? Was it for a professional qualification or prerequisites to further studies?)*
    f. *bridges to traditional degree (e.g. What access does the program give to other programs in the home country?)*

Duration of study program

35. *Each academic year of study, as recognized by the official designated authority in the country of origin, should in general be granted no more than one academic year of recognition. However, this year-to-year comparison may be overruled by other factors, such as education outcomes, or the structure and content of the educational program.*

Appeal

36. *Upon request, the assessment service should inform the applicant of the basis for the decision reached, the possibilities for him or her to appeal the decision, and the time limits that should be observed.*

Databases for evaluating academic credit

A notable effort in the electronic resource publication category is the Electronic Database for Global Education (EDGE), a repository of 231 country educational systems from 231 countries. AACRAO manages and constantly refreshes this data base. It offers annual subscription memberships in EDGE and currently has nearly a thousand subscribers. Each country profile contains

- an overview of the country's educational system,
- grading scales with recommended US grade comparisons,
- sample credentials,
- educational ladders showing the outline of the educational system, and
- a list of credentials awarded in that country
- associated credential comparison advice provided by the AACRAO International Education Standards Council (IESC).

EDGE is currently being used by the United States Department of Homeland Security to help decide visa application requests.

CHAPTER 4

A Mutual Recognition/ Multi-Lateral Agreement for ISO/IEC 17024

The International Organization for Standardization

The International Organization for Standardization (ISO) is an independent, non-governmental organization that brings experts together to develop and maintain standards and specifications for products, services, systems, and persons, in order to ensure quality, safety and efficiency. Standards facilitate world trade by defining a set of requirements that helps comparison. This ensures a common descriptor or language that is agreed upon by all relevant stakeholders. However, developing a standard (say for a product or for the competence of a person) does not help if you are not comparing your output to the standard (for example determining if your product or your person meets the standard). The process of comparing a product, service, system or person to a standard is called "Conformity Assessment." ISO does not conduct conformity assessment activities itself. ISO manages the standards development process. ISO has published over 22051 International Standards covering almost all aspects of technology and manufacturing. Conformity assessment activities are conducted by Certification Bodies and Accreditation Bodies. Specifically, Certification Bodies verify that the product, service, system or person meets the standard. Accreditation Bodies verify that Certification Bodies operate in a competent, impartial and consistent manner.

ISO has a division called the Committee on Conformity Assessment (CASCO) and ISO CASCO is the ISO committee that works on issues relating to conformity assessment. CASCO develops policy and publishes standards related to conformity assessment. You can generally identify CASCO standards and documents because they generally begin the number 17 (for example 17024 and 17011). But like ISO, CASCO does not conduct conformity assessment activities itself. It only develops and publishes the standards.

ISO CASCO standards are designed to be used by Accreditation Bodies to evaluate Certification Bodies. So in the case of ISO/IEC 17024, this is a standard that defines how a Certification Body for persons operates and the standard is used by Accreditation Bodies to evaluate the operations of a Certification Body for Persons.

ISO/IEC 17024 states in its introduction:

> *This International Standard has been developed with the objective of achieving and promoting a globally accepted benchmark for organizations operating certification of persons. Certification for persons is one means of providing assurance that the certified person meets the requirements of the certification scheme. Confidence in the respective certification schemes for persons is achieved by means of a globally accepted process of assessment and periodic re-assessments of the competence of certified persons.*

The introduction further states:

> *In either case, this International Standard can serve as the basis for the recognition of the certification bodies for persons and the certification schemes under which persons are certified, in order to facilitate their acceptance at the national and international levels. Only the harmonization of the system for developing and maintaining certification schemes for persons can establish the environment for mutual recognition and the global exchange of personnel.*

Thus the intent in developing ISO/IEC 17024 was to develop a set of best practices to enable Certification Bodies for Persons to develop quality certification programs to verify the competence of persons that would promote the development of a global workforce. And to achieve the outcome of a global workforce, the standard could be used as the basis for the recognition of Certification Bodies for Persons (accreditation) and the establishment of "the environment for mutual recognition. . ."

The International Accreditation Forum

Since ISO does not conduct conformity assessment (certification or accreditation) activities itself, it cannot facilitate the mutual recognition of conformity assessment results. The International Accreditation Forum (IAF) has been established to do just that. The IAF is a global association of Accreditation Bodies, Certification Body Associations and other organizations involved in conformity assessment. The primary objective of the IAF is to develop a single, worldwide program of conformity assessment, which reduces risk for business and end users by ensuring that accredited certificates and certifications may be relied on. Accreditation

assures that the Conformity Assessment Body (Certification Body) providing certification to a standard has the required competence and impartiality to do so as evidenced by fulfillment of international standards and requirements.

IAF lists its objectives as:

- To maintain and develop a MLA among Accreditation Body Members to ensure recognition of accredited certification among signatories.
- To act as a global forum to bring together accreditation bodies and stakeholder groups to facilitate global trade.
- To develop appropriate harmonization of certification best practice.
- To promote accredited certification by working with, and influencing, key international organizations and industry groups.

IAF through a rigorous peer evaluation process based on standards has developed a Multilateral Recognition Arrangements (MLAs). These MLAs ensure mutual recognition of accredited certification among signatories to the MLA and subsequently, acceptance of accredited certification in those markets based on one accreditation. For certification of persons, this would mean that an accredited certificate held by a person could be accepted in another country. This helps to meets IAF's goal of ***Certified once – accepted everywhere.***

The IAF MLA is structured in five levels: Level 1 specifies mandatory criteria that apply to all ABs, ISO/IEC 17011. The combination of a Level 2 activity(ies) and the corresponding Level 3 normative document(s) is called the main scope of the MLA, and the combination of Level 4 (if applicable) and Level 5 relevant normative documents is called a sub-scope of the MLA.

The main scope of the MLA includes activities e.g. product certification and associated mandatory documents e.g. ISO/IEC 17065. The attestations made by CABs at the main scope level are considered to be equally reliable.

The sub-scope of the MLA includes conformity assessment requirements e.g. ISO 9001 and scheme specific requirements, where applicable, e.g. ISO TS 22003. The attestations made by CABs at the sub-scope level are considered to be equivalent. Each of the five levels are further described below:

Level 1 ISO/IEC 17011, specifies the criteria for Accreditation Body (AB)

Level 2 Accreditation Activities, in which the AB has demonstrated competence to perform accreditation as specified by the IAF endorsed generic accreditation normative documents listed in Level 3. IAF MLA accreditation activities are:

- Management system certification
- Product certification
- Certification of persons

Level 3 IAF endorsed generic accreditation normative document used by the AB to assess the Conformity Assessment Body (CAB) competence for each accreditation activity. For example:

- For management system certification – ISO/IEC 17021
- For product certification – ISO/IEC 17065
- For certification of persons – ISO/IEC 17024

Level 4 IAF endorsed sector specific normative documents which specify internationally recognized applications of the generic normative documents listed in Level 3. The documents are used by the AB, in combination with the generic normative documents listed in Level 3 to assess the CAB competence in the relevant sector. For example normative document to be used in combination with ISO/IEC 17021:

- For certification of food safety management systems (FSMS) – ISO/TS 22003
- For certification of information security management systems (ISMS) – ISO/IEC 27006

Level 5 IAF endorsed conformity assessment normative document used by CABs. For example normative document used by Management System Certification Bodies

- For certification of Quality Management Systems (QMS) – ISO 9001
- For certification of Environmental Management Systems (EMS) – ISO 14001,
- For certification of Food Safety Management Systems (FMS) – ISO 22000,
- For Information Security Management Systems (IMS) – ISO/IEC 27001

As of January 2018, there are currently four main scopes (level 3): Management Systems, Product Certification, Certification of Persons and Greenhouse Gas Validation and Verification and there are seven sub-scopes (level 5) for Management Systems (QMS, EMS, ISMS, FSMS, MDMS, EnMS, FAMI-QS), one for Product (Global G.A.P Integrated Farm Assurance), ***and one for Persons (IPC Management System Auditors).***

It should be noted as stated above in bold and italicized that there is one level 5 sub-scope for persons. A level 5 sub-scope is established when a scheme owner submits its scheme to IAF for review. Based on criteria established by IAF, once a scheme has been evaluated and approved as an "endorsed scheme" it is then eligible for a level 5 MLA for persons. IPC has submitted such a scheme for persons and it has been endorsed by IAF.

Regional cooperation bodies

The IAF MLAs are built upon the Regional Cooperation Bodies. These Regional bodies are:

European Cooperation for Accreditation (EA)*

Pacific Accreditation Cooperation (PAC)*

Inter American Accreditation Cooperation (IAAC)*

Southern African Development Community Accreditation (SADCA)**

African Accreditation Cooperation (AFRAC)**

Arab Accredation Cooperation (ARAC)*

*Recognized Regional Accreditation Group Member
**Regional Accreditation Group Member

The route to the arrangements is through the Regional Cooperation Bodies. An accreditation body determines whether it wants to apply for membership to an IAF Arrangement. It must determine if it is eligible to be a member of a recognized Regional Cooperation Body. If so, it then applies to the relevant Regional Cooperation Body and is subject to a peer evaluation process within the Regional Cooperation Body. Each region develops a multilateral recognition arrangement for its members. For instance, currently there is a multilateral recognition arrangement for ISO/IEC 17024 in the Pacific Accreditation Cooperation with five signatories. In order for a region to be recognized by IAF for a particular scope, the region applies to IAF and is subsequently evaluated by IAF as per its requirements and applicable standards. When a region is recognized by IAF for a MLA status for a particular standard, all the accreditation bodies that are MLA signatories in that region are accorded that status of IAF MLA signatory. In circumstances where the accreditation body is not eligible to be a member of a Regional Cooperation Body, it may apply directly to IAF.

Certification Bodies wishing to participate in a MLA would first need to apply for and obtain accreditation. Once accredited, the accreditation body could seek to become a signatory to a Regional Cooperation Body MLA for persons and that certification body would become party to the MLA at the main scope level (level 3). If the certification body is interested in recognition at the scheme level, it would need to submit its scheme to IAF to become an endorsed scheme and once endorsed, that scheme would then be eligible for a sub-scope MLA (level 5).

The benefit of participating in the IAF MLA includes the worldwide acceptance of the certification. At the level 5 MLA, the certified person would automatically be accepted in any country where the accreditation body is a signatory to the MLA for persons for that level 5 sub-scope. At level 3, the accredited certification body that awarded the person certification is recognized as equally competent and should be able to offer certification in those countries . In both cases, the certified person would find higher acceptance of their certification across borders.

CHAPTER 5

Globalization of Workforce Certification: Implications for International Agencies

Introduction

Globalization of personnel regulatory systems is being driven by many factors including:

- Increased governmental and private sector interest in negotiating trade in services agreements; Cross-border trade in services has grown from 9% of total trade in 1970 to over 20% in 2010 and is expected to continue to grow and even catch up with trade in products1 This trend toward globalization is affecting nearly every sector and exposing many professions to new areas of competition.

- The interest of national and multi-national corporations to expand their businesses globally and ensure consistency in the quality of their employees. A key driver for business decisions regarding expanding into any specific country is whether or not there is an existing qualified workforce, how to determine whether they are qualified and the costs of workforce development.

- The increased sensitivity regarding the need to improve public protection particularly within the healthcare and technology security sectors. For example, electronic systems of delivering healthcare services (such as telehealth) and educating healthcare workers (such as distance education) make the cross border delivery of healthcare, education and other services routine. As an example, there are many reports of diagnostic activities and procedures from US hospitals and laboratories such as X-Rays now being outsourced to non-US facilities.

- Interest from certification bodies that have saturated local markets and want to increase revenue, better serve industry stakeholders, create more prestige for the credential and create new job opportunities for credential holders.

- Interest from employers and regulators in improving industry practices through utilization of better qualified personnel.

- Developing new markets for other certification program products and services, such as training or conferences.

- Creating larger knowledge and networking base, i.e. sharing research.

- Expanding efforts to influence how an occupation is performed in other countries.

- Improve consumer information vehicles in other countries.

- Improve the status and visibility of an occupation in other countries.

- The growth of distance education and computer delivered assessments that make global expansion of certification programs less costly and more feasible.

Overview of certification systems used by international agencies

Models for Globalizing Certification Systems

Historically, offering certification to individuals from a different country was limited to evaluating the credentials and training and experience of individuals who moved from one country to another and applied for certification in their new country of residence. Now, many credentialing agencies are actively exporting their programs to other countries and marketing certification as an international mark of quality.

Since international certifications can make a huge difference in the (global) acceptance of products and services from developing countries, international organisations, such as the United Nations Industrial Development Organisation (UNIDO) are facilitating the procedure and assisting developing countries along the way of the certification of products and services.

UNIDO has an extensive and proven track record in working with government, industry and other major stakeholders in developing countries to build Quality Infrastructure Systems (QIS). UNIDO's approach is holistic, from building awareness of the QIS to helping to set it up and get it running efficiently and effectively. Throughout, UNIDO emphasizes hand-in-hand

1 Loungani, Prakash et. al. IMF Working Paper, World Trade in Services: Evidence from A New Dataset. International Monetary Fund. March, 2017.

and hands-on cooperation with stakeholders on collective actions based on shared objectives.

1. Defining and developing a single internationally accepted uniform set of academic requirements and credentialing standards for a profession that are agreed on and applied internationally

With this model, an international body develops common international standards. This body is typically made up of representatives of various countries that develop country-neutral standards of certification or education. These standards sometime serve as guidelines and the participating countries are not required to use them. However, in some occupations all the countries represented in developing the standards agree to use them exclusively.

Most international standards are of this nature. One successful example exists in the field of occupational therapy. The World Federation of Occupational Therapy (WFOT) has developed standards for academic and clinical courses needed to be an occupational therapist. The standards address profession-specific course content but do not mandate degree tag or the level or scope of instruction outside the professional areas. Educational institutions in fifty-one countries have agreed to abide by the WFOT accreditation standards. This model has been helpful within the academic community and has also helped define the profession in countries in which occupational therapy did not exist. However, it has had less success in promoting the portability of occupational therapists. This is because the agreement fails to address the other requirements for practice such as degree tag or examination. Each country independently defines these additional requirements.

Another example is the profession specific standards created through the International Organization for Standardization (ISO) in Geneva Switzerland. While historically, ISO standards have focused on common standards for certain types of products, increasingly ISO has been developing standards that define the role and qualifications for the practice for specific occupations including standards for welders, auditors and Non-destructive Testing (NDT) Professionals. These occupation specific certification standards are in addition to the standard discussed elsewhere in this document for the operation of certification programs which define how personnel certification programs across professions are to operate, including how they establish certification requirements, assess individuals to determine if they meet these requirements and how they award certification and monitor certification holders. These requirements and the implication for international agencies are discussed later in this report.

2. Exporting a certification developed in one country to another country with no changes;

In a second model, a certification agency in one country may agree to certify individuals in another country that meet its standards. While this model has existed for many years, it was generally applied to individuals who moved from one country to another and applied for certification in their new country of residence. However many credentialing agencies are actively exporting their programs to other countries, setting up testing centers and marketing certification as an international mark of quality. This trend is being driven in part by multinational corporations wanting to have their employees certified against a single standard as long as it is acceptable in other countries. For example some U.S. hospitality and food services chains use the U.S. Food Safety Manager Certification for all their employees worldwide.

One way of managing this international movement of a credential is through licensing agreements with local professional societies or educational programs. In such an arrangement the exporting agency contracts with the local agency to manage the exam process, review applications and award the credential in the name of the exporting agency. This model is particularly successful in countries where the profession is just emerging as a specific defined area of expertise and where no local existing mechanism exists to confer professional recognition on individuals that have demonstrated meeting the standards to practice that profession. In these circumstances, the external certification agency can help the profession be recognized and can assist in guiding its growth.

3. Using a core certification requirements but making country specific adaptations based on local needs

In this model the certification body maintains its core standards for certification but will conduct country specific job task analyses. Methodology for conducting Job Task Analyses are discussed in the UNIDO Chapter on *Requirements for Creating A Certification Program* and adapt critical certification requirements (most often content of the knowledge and skills that will be assessed) to meet how an occupation is performed in a specific country. In some cases a certification body may not necessarily conduct an entirely new job analysis but may include cultural adaptations in the content of exam questions.

4. Mutual Recognition Arrangements

Mutual recognition arrangements can be established between credentialing organizations in two or more countries. The organizations determine, through a mutually agreed upon set of principles and processes, that all or some of their respective certification requirements are substantially equivalent. Holding a valid credential from one agency automatically qualifies the applicant to be exempted from having to demonstrate that they meet those certification requirements deemed equivalent. As an example, in cases where the content and level of coursework have been demonstrated to be substantially equivalent, applicants applying to certification agencies that are party to the agreement would have their academic preparation automatically accepted. In this case, the applicant would not need to submit academic transcripts but rather simply show evidence of having been credentialed by a participating certification agency.

Mutual recognition is defined by the European Commission as

> *"...a vehicle for regulatory cooperation and it may be based on harmonization, equivalence, or external criteria such as the importing party's standards or international standards. In a mutual recognition agreement, two or more parties agree to recognize and accept each other's conformity assessment results, test reports, certificates, product standards, regulations, markings, and/or quality assurance system standards because they are harmonized or judged to be equivalent, or because they satisfy other agreed-upon external criteria."* [2]

Certification organizations generally define a mutual recognition program as an endorsement of credentials proffered on an individual by another certification organization based on certain principles. This program permits a certification organization to recognize certifications granted by another certification body as a condition for awarding its own certification.

There is increasing interest in mutual recognition arrangements. The use of mutual recognition as an effective tool for promoting portability of qualified healthcare workers and encouraging transnational models of quality education is illustrated a case study[3] found in Attachment1 that discusses how one profession is developed a multinational mutual recognition system.

The concept of "Substantial Equivalency"

A key requisite to creating mutual recognition agreements or even evaluating the credentials of individual applications for certification is the need to agree on a definition of "substantial equivalency". What is equivalency and what level of equivalency might be considered to be substantial? Unfortunately there is no clear definition that is commonly agreed on within the international community. The Canadian Information Centre for International Credentials www.cicic.org produces several excellent guidance documents that outline the process that should be used in assessing equivalency. Excerpts from one of these documents[4] are reproduced in Attachment 2 General Guiding Principles for Good Practice in the Assessment of Foreign Credentials.

5. Reciprocal Agreements

In cases where there is a great deal of equivalency, agencies might develop reciprocal agreements. In this system, holding certification issued by one organization automatically qualifies an individual to hold another certification with no additional requirements being imposed. This model has the advantage

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2 Petriccione.M. Mutual Recognition Agreements, Presentation to Trans-Atlantic Consumer Dialogue Conference, http://tacd.org/index.php/ retrieved May13, 2010.

3 Goldsmith,S. The Millennium Intent: A Case Study in Assuring Quality International Standards in Education Health Care Professionals in Quality Transnational Education, UNESCO CEPES European Center for Higher Education, Vol. XXVII: No 3, 2002, p 231.

4 General Guiding Principles for Good Practice in the Assessment of Foreign Credentials, retrieved from http://www.cicic.ca/502/good-practice.canada

of respecting locally developed standards of practice and certification systems while encouraging full portability.

Strategies to develop reciprocal agreements are similar to those used for mutual recognition agreements. However, in a reciprocal agreement, all candidates holding certification by one body are considered certified by the other bodies party to the agreement and there is no requirement that individuals apply to the certification agencies in order to be considered certified. While this system makes it easier for individuals to gain multiple certifications it has negative implications for certification bodies in the form of foregone certification application fees and reduced opportunities to review individual applications.

MODELS FOR GLOBALIZATION IN SUMMARY

Uniform international certification schemes	In this model, an international body develops common international competency standards (schemes). This body is typically made up of representatives of various countries that develop country-neutral standards of certification or education. These standards sometime serve as guidelines and the participating countries are not required to use them. However, in some occupations all the countries represented in developing the standards agree to use them exclusively.
Exporting certification between countries	In this model, a certification agency in one country agrees to certify individuals from another country that have been found to meet its standards. Historically this model has been used when an individual moves from one country to another and applies for certification. However now, many certification agencies are actively exporting their programs, establishing testing centers, and marketing their certification in other countries.
Licensing agreements	Another way of managing international movement of a credential is through licensing agreements with local professional societies or educational programs. In such an arrangement, the exporting agency contracts with the local agency to manage the examination process, review applications, and award the credential in the name of the exporting agency, the local agency, or both. Expenses and revenues from the program are shared. This model is particularly successful in countries in which an occupation is just emerging as a specific defined area of expertise and in which no local existing mechanism exists to confer professional recognition.
Mutual recognition	Mutual recognition arrangements can be established between credentialing organizations in two or more countries. The organizations determine, through a mutually agreed upon set of principles and processes, that all or some of their respective certification requirements are substantially equivalent. Holding a valid credential from one agency automatically qualifies the applicant to be exempted from having to demonstrate that they meet those certification requirements deemed equivalent. As an example, in cases where the content and level of coursework have been demonstrated to be substantially equivalent, applicants applying to certification agencies that are party to the agreement would have their academic preparation automatically accepted. In this case, the applicant would not need to submit academic transcripts but rather simply show evidence of having been credentialed by a participating certification agency. Mutual recognition models can promote internationally endorsed models of quality assurance while permitting local industries and country specific personnel credentialing systems to continue to address local issues, cultural sensitivities, practices and consumer needs.
Reciprocal Agreements	In cases where there is a great deal of equivalency, agencies might develop reciprocal agreements so that holding one certification automatically qualifies an individual to hold another certification with no additional requirements being imposed. This model has the advantage of respecting locally developed standards of practice and certification systems while encouraging full portability.

Determining the Feasibility of International Operations and Defining Specific Markets

Certification programs and/or the countries /and/or industries that the certification operates within must consider some fundamental issues when determining the feasibility of global expansion. These include exploring the following questions:

- Will the certification be relevant? Is the occupation being certified defined in the same way among countries?
- Is there a common scope of practice and practice patterns?
- Are there similar levels of autonomy for how the occupation is practiced?
- Are there governmental authorities or other accreditation or educational approval bodies that will need to recognize any locally developed certification related training?
- Are there governments or other regulatory bodies that must approve certifications?
- How useful will the certification be to certification holders?
- What immigration laws and regulations should be considered that might influence access to employment in addition to holding the certification?

Determining Specific Markets

Below are some key factors that can help identify those markets that are MOST likely to be successful.

POTENTIAL SUCCESSFUL MARKETS
Countries that have similar infrastructures/ job responsibilities to those in country where certification currently operates
Countries that have similar educational and other employment requirements
Countries that have laws and other regulatory mechanisms that will support expansion efforts in that country
Countries that can provide any education or training required to be certified
Countries that have expressed an interest in importing the certification
Countries in which you have identified a reliable contact individual and agency
Countries that already use the same language the certification materials and examination are currently offered in or would want exams offered in that language
Countries where there is a very high level of exam security and can support responsible administration and use of exams
Countries where there would be fiscal support available for globalization through large number of potential candidates
Countries your key stakeholders are interested in working with
Countries in which certification has already established some positive presence and reputation
Countries that have a record of success in working with certification programs
Countries where there would be fiscal support available for globalization through industry vendor assistance
Countries where there would be fiscal support available for globalization through governmental assistance
Countries that have laws or other regulatory mechanisms that are neutral to your efforts in that country
Countries that have expressed interest in emulating educational programs, service delivery models
Countries where there would be fiscal support available for globalization through private foundation or other forms of assistance

Methods for Operating Certifications in Multiple Countries

Methods for exporting certifications include:

- Utilizing test centers in other countries or making computer-based examinations available internationally.

- Creating licensing agreements with local professional societies or academic programs to act as an agent of the certification organization in different countries. In such an arrangement, the exporting agency contracts with the local agency to manage the exam process, review applications and award the credential in the name of the exporting agency. Expenses and revenues from the program may be shared. This model is particularly successful in countries where the profession is just emerging as a specific defined area of expertise and where no local existing mechanism exists to confer professional recognition on individuals. In these circumstances, the external certification agency can help the profession be recognized and can assist in guiding its growth.

- Establishing branch offices in other countries, staffed by individuals who report directly to the home organization.

Operational issues to consider when offering certifications in multiple countries

Selecting exam sites

Selecting which countries to work with and selecting where to physically house the administration of an exam are key challenges. These decisions are not the same and different factors need to be considered in making each of these decisions. . There is a difference between marketing to applicants in a specific country and actually offering the exam in that country. There may be reasons why it would be better to offer the exam in a country other than a direct primary market. Political, financial, geographic and accessibility factors become part of this equation.

Things to consider in choosing specific testing sites are:

- Political stability of the area
- Transportation availability for candidates
- Accommodation and services availability:
  - Place for candidates to stay the night and get food etc.
- Accessibility to the country for candidates from other countries
  - Visa issues, central location within a region, cost
- Test security issues during test administration
- Test security issues in transporting tests to and from site
- Test administration costs for the certification body
- Sufficient candidate pool
- Ability of candidates to pay exam and related fees
- Availability of technical support that may be needed to support computer assisted exams or exams utilizing remote proctoring
- Government approval

Designing Examinations and Other Assessments

To facilitate an understanding of international component requirements, it is helpful for a certification body to compare the structure and content of its domestic certification scheme with the structure and content of its foreign certification scheme. It is important to thoroughly consider the implications for increasing personnel mobility across international borders. If the structure and content differ, the question of whether the credentials of successful candidates should be considered equivalent is of particular importance. The paradigm that follows provides certification bodies with a useful classification model to address these important issues in comparing domestic and foreign schemes.

A. Same: The examination content outline or blueprint, and eligibility requirements are identical for all countries.

B. Equivalent: The items on the International Component are substantively the same as on the Domestic Component, differing nominally to account for linguistic and cultural nuances, and/or professional differences. For example, a drug that is included as a distractor option in a domestic examination item may not be available in another country. A comparable alternative may appear on the International Component such that the intent, content, and difficulty of the

source item are maintained. The International Component utilizes the examination content outline or blueprint of the domestic examination, and eligibility requirements are equivalent, differing only in how prerequisites are accrued, e.g., the equivalent of a baccalaureate degree in another country may be longer or shorter in duration.

C. Similar: The items on the International Component are selected from the examination item database of the domestic examination, but with a different distribution of content, reflecting a different mode or emphasis of practice in another country. These differences are evident in the differences of the examination content outlines or blueprints and eligibility requirements.

D. Different: The International Component develops its own examination items and examination content outline or blueprint. Eligibility requirements differ

Avoiding the mistakes

Mistakes certification bodies have made when attempting to globalize operations include:

- Investing a great deal of resources in establishing a mutual recognition system and then finding out that very few individuals are actually eligible for and/or interested in accessing certification under the terms of this system.
- Offering exams in countries and discovering that the educational system is so different that few or none of the applicants in that country were able to pass the exam.
- Offering exams in countries where potential candidates are unable to pay for costs of exam and related certification fees.
- Working with international partners that essentially stole al the organization's intellectual property, specifically taking the exam that they were administrating under a licensing agreement and reframing it as its own exam, essentially setting up a competing certification program using the U.S. organization's materials.
- Spending time talking with individuals/organizations that misrepresented their authority and standing within their country and don't have the capacity to implement what has been agreed to.

Possible Challenges for Certification Bodies Operating in Multiple Countries

Some of the requirements in ISO/IEC 17024:2012 reflect concepts that may create particular challenges for certification bodies offering certifications in multiple countries due to differences in how individuals and organizations in different countries may interpret these principles and apply these concepts.

Adhere to regulatory requirements

This can be one of the most challenging requirements for certification bodies because regulations obviously vary from country to country. This concept requires that certification bodies adhere to laws and regulations in each of the countries in which the certification body physically operates, including those in which it offers its examinations. These regulations differ among countries and may be different from country to country. For example, in some Middle Eastern countries, men and woman must sit for certification examinations in different rooms and/or are prohibited from serving as examiners for members of the other gender. Such provisions would clearly violate anti-discrimination regulations in other countries,

As an example, U.S. credentialing organizations must comply with the U.S. Federal Americans with Disabilities Act (ADA) requirements – which address accommodations for individuals with disabilities. Regulations protecting the rights of individuals with disabilities are very different or non-existent in other countries. There is wide disparity across countries regarding regulations (if any) that mandate test accommodations for individuals with disabilities, and the manner in which regulations are interpreted and enforced. Countries that do regulate in this area – such as Canada, the U.K., the Netherlands, Germany, and Belgium – appear to have regulations similar to those of the U.S. ADA that mandate test accommodations except where the accommodation would create a fundamental alteration in what the test purports to measure.

Fair and equitable

This appears to be a simple concept with which to demonstrate compliance when the certification body applies a single set of standards domestically. However, applying the same standards in a certification scheme across multiple countries may inadvertently impose unfair and inequitable treatment for candidates.

For example, degree tags may have different meanings in different countries. A baccalaureate degree from a college or university in the U.K. is often determined to be substantially equivalent to a Master's degree earned in a U.S. college or university, depending on the academic program or course of study. Demanding the same type of degree because it has the same title but represents a different level of achievement may not be "fair and equitable."

Imposing sanctions for unethical behavior

Monitoring ethical behavior is challenging. A fundamental factor is that what is considered unethical behavior may vary by culture. For example, in some countries sharing information on the content of the exam is considered the ethical thing to do because it can help a colleague. In some other countries this behavior is considered unethical.

Different legal structures influence how sanctions can be applied. Different fundamental concepts regarding what constitutes ethical behavior may exist based on local moral principles and customs. Refer to discussion on security for an example.

Development and maintenance of a certification scheme

Some certification organizations adopt different standards for different countries (refer to earlier classification model). This is appropriate when the scope of the work and tasks performed under similar occupational/professional titles vary significantly among countries, or where the knowledge and skills necessary to perform an occupation or profession is highly dependent on local regulations and practices. For example, financial advisers or accountants may not differ in the tasks performed among countries, but the knowledge of appropriate banking requirements, investment options, and investment/accounting practices may indeed be quite different.

Qualifications of personnel and outsourcing

Monitoring the qualifications of personnel and managing how they operate within multiple countries may become more difficult due to distance, language differences and other challenges.

Monitoring and evaluating personnel in multiple countries becomes even more complicated due to the use of local country based subcontractors that may be conducting marketing/training activities and/or administering exams or other types of assessments.

A common way to handle international operations is through licensing agreements with local professional societies or educational programs. In such an arrangement, the certification body that owns the examination-exporting agency contracts with the local agency to manage the examination process, review applications, and award the credential in the name of the certification body owning the examination(s), the local agency, or both. Expenses and revenues from the program are typically shared.

Relying on work done by another certification body

Many certification programs support global operations through the use of mutual recognition (reciprocal) or bilateral/multilateral arrangements with other certification programs for the same occupation in other countries. Many of the ISO/IEC 17024:2012 requirements are relevant to how these are developed and maintained. These arrangements can be considered a form of subcontracting since there is reliance on the work and judgment of others.

"Mutual Recognition Arrangement rather than "Multilateral Agreement or Arrangement" is the term most commonly used when discussing agreements among private personnel certification bodies. Mutual recognition is defined by the European Commission as

> *"…a vehicle for regulatory cooperation and it may be based on harmonization, equivalence, or external criteria such as the importing party's standards or international*

standards. In a mutual recognition agreement, two or more parties agree to recognize and accept each other's conformity assessment results, test reports, certificates, product standards, regulations, markings, and/or quality assurance system standards because they are harmonized or judged to be equivalent, or because they satisfy other agreed-upon external criteria."

Certification bodies generally define a mutual recognition program as an endorsement of credentials proffered on an individual by another certification body based on certain principles. This program permits a certification body to recognize certifications granted by another certification body as a condition for awarding its own certification.

Security of exams and records and confidentiality of information

Complying with security requirements can present additional challenges for certification bodies operating internationally. One potential challenge is that the level of security in test centers, wherein centers operated by vendors providing international administrations may differ significantly among countries and among regions within a country. Operation of some test centers may not be handled directly by the test vendor but may be subcontracted to a local agency; this may in turn lead to subcontracting to yet another local agency and can make monitoring conditions and ensuring uniformity of conditions among test centers very difficult.

One other challenge to security is that expectations for what constitutes ethical behavior regarding examinations and intellectual property are inconsistent among countries. This issue was discussed earlier in this document with regard to ethics. It is repeated here because of its importance regarding security.

In some countries the copying and sharing of examination questions is considered both unethical and illegal. In other countries, such behavior may be considered part of "teamwork."

A key factor influencing test security is that copyright and trademark protections differ from country to country. For example, a U.S. copyright doesn't necessarily protect exams offered outside the U.S. Thus there may be no recourse if an exam is lifted and copied in another country.

Test Translation

ISO 17024:2012 does not require test translation except where it is dictated by local regulation. Certification bodies must carefully consider whether or not to translate an examination. Examination translations can be very costly, resource-intensive, and prone to legal challenges.

Examination translation raises issues beyond linguistic matters. Translation also requires that examination items are modified as necessary to align with local cultural sensitivities, norms, and professional practices. These adaptations are expected to be made while maintaining the difficulty level of the affected item(s). However, while there may be legal requirements for certification programs to provide translated examinations (For example, examinations in the Canadian Province of Quebec must be offered in English and French.), voluntary certification body efforts in translation will not be appreciated unless their level of fidelity and accuracy are high. Some countries such as Egypt, Saudi Arabia, the Philippines, and Japan generally expect (and even prefer) that international certification examinations offered by U.S. and U.K. certification agencies operating in their countries be offered only in English. Therefore, the issue of examination translation is not necessarily a barrier to globalization efforts, but should be considered when planning to operate globally.

Use of certificates and logos/marks

Certification bodies that do not apply the same certification requirements in all countries but create and apply local variations of their certification requirements in different countries should indicate the existence of these differences by using related but different certification designations, marks, and logos. This is important so that certificants and the public understand that while the certification may represent a uniform, universally appropriate core body of competencies, other competencies may vary based on the country in which the certification was issued. The certification body should own any credentials it creates and can either remove them or require conformance with appropriate uses.

As noted earlier, cross-border monitoring of behavior and the feasibility of taking any corrective action can be more complicated due to increased distance, local definitions of what constitutes copyright infringements regarding use of marks or logos, and the availability of corrective measures that conform to local legal, ethical, and regulatory norms.

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