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Education for all

- ISO Award for Higher Education
- 30th ISO General Assembly
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What are the key challenges for standardization in education in the 21st century? Education, I believe, is a special type of service. One that will have a major impact on the future of society, from its basic roots to the most sophisticated technological aspects. Education has to anticipate the needs of future generations, years in advance!

Today’s fast paced, changing world demands lifelong learning, and thus poses a challenge for defining educational needs, values, curricula and operational issues. From conventional schooling to continual innovation, from a results-oriented approach to an emphasis on teaching methods, from the traditional delivery of courses to an increasing use of technology and e-learning – educational concerns are multiple and varied.

As citizens of a global village – an intertwined economic and social system with worldwide movement of goods and people – we are all consumers and hence customers of education. Is there then a need and demand, as with any other globally consumed product or service, for standardization in education? ISO must reflect on these questions to understand what issues lie within its scope, and which should be dealt with elsewhere.

What do we mean by associating standardization to education, and what kind of role can ISO play? We can interpret it in three different ways: to promote quality management in education and standards relating to qualifications worldwide; to teach standardization within the educational system; or to include courses on specific standards within educational curricula.

Promoting quality management and international standards on qualifications would be a huge leap forward towards the creation of a truly global society. Although standardizing teaching methods and materials, for instance, could prove a daunting task, ISO’s experience in creating consensus among stakeholders from around the world provides a unique platform to meet this challenge. ISO has already introduced the concept of harmonized international requirements in education through standardized personnel qualification requirements. And we have ISO standards on training services or to support the development of e-learning. Perhaps one day this could be applied to the educational system as a whole.

“Standardization can contribute to our goals of sustainable development.”

Teaching standardization and raising awareness in the academic world on the benefits and use of standards, on the other hand, is already part of ISO’s strategy. Although key in the global economy for industry, trade and services, a great proportion of the world’s workforce, including post-secondary graduates, has little or no exposure to and understanding of standards. Students complete degrees in engineering and business management without ever learning who develops standards and how, their importance and application and their key role in technology and international trade. This is why ISO established the ISO Award for Higher Education in Standardization, presented for the first time this year at the General Assembly in September. In this issue of ISO Focus, we will learn of the universities and institutions which are leading the way in standardization education, shaping the next generation of professionals to be better equipped to face the global marketplace.

Standardization education should begin in early childhood. Several ISO members are already developing educational tools, such as the British Standards Institute (BSI) Web site for children (www bsieducation org) and we also support the international deployment of the ISO 14000 Kids Programme initiated in Japan. I encourage others to do the same, in order to create a more intelligent marketplace, where all players – manufacturers, suppliers, distributors, consumers and government – understand one of the basic rules of the game. An overwhelming majority of universities are also failing to include key standards in their course curriculum. International Standards are a form of communication, an agreed-upon international language that allows scientists and technician to collaborate, as well as buyers and sellers around the world to trade. Logically, we should expect students of all subjects, not just engineering and science, to be fluent upon graduation. Yet, rarely are courses on fundamental standards in the global marketplace, such as ISO 9001 and other management system standards, part of a regular university curriculum. Is it not our aim to prepare students for the real world? The views contained in this issue of the ISO award selection committee on the benefits of standards, provide food for thought on the urgency for education. Making the connection between education and standardization is one of the key factors for sustainability in the global economy, and can contribute to our goals of sustainable development. It is up to all of us who represent the standards community to promote and translate these into actions: whether this involves promoting quality management in the education system, developing standards on professional qualifications, teaching the principles of standardization within this system, or using standards as part of the course curriculum and learning material.

In the context of globalization, this poses an enormous challenge, but one that we must take, as a way to ensure the free movement of goods and people between countries enabling a sustainable development, for generations to come.
ISO Secretary-General Alan Bryden (6th from left), Rajat Nag, Director-General of the ADB (4th from left) and Jesus Motoomull, ISO Regional Liaison Officer for East and South-East Asia (4th from right) together with ADB management.

ASEAN Consultative Committee for Standards and Quality

The ASEAN Consultative Committee for Standards and Quality (ACCSQ) met for its 13th session in August 2007, in Manila, Philippines. With the recent admission of the Department of Intellectual Property, Standardization and Metrology (DISM) of the Lao People’s Democratic Republic, all ACCSQ members are now members of ISO.

The meeting reviewed the mechanism to monitor the implementation of the “ASEAN Policy Guideline on Standards and Conformance”, which, inter alia, encourages the use of International Standards. It adopted the “Guide on basic rules for the ASEAN conformity mark” and reviewed cooperation in various sectors, such as cosmetics, pharmaceuticals, medical devices, rubber and wood-based products, foodstuff, and automotive and electrical appliances.

A regional workshop on social responsibility was organized by the Bureau of Product Standards of the Philippines Department of Trade and Industry, sponsored by ISO to address progress of ISO 26000. ISO Secretary-General Alan Bryden welcomed the increased involvement of ASEAN countries in ISO activities and the growing take-up of ISO standards in the region, associated with various regional training and awareness-raising events supported by ISO.

In conjunction with the meeting, the ISO Secretary-General visited the Asian Development Bank (ADB), where he met with its Director General, Mr. Rajat Nag. This gave an opportunity to review and promote the interest of ADB in supporting the quality infrastructures in the region.

Governance of water and sanitation services in Africa

Building African water stakeholders’ capacities was the goal of the workshop held in July 2007, in Kampala, Uganda. The meeting, attended by 30 regional participants, aimed to organize test programmes for three ISO standards on activities relating to drinking water and wastewater services developed by ISO/TC 224.

The standards provide guidelines for the assessment and improvement of the service to users; the management of waste-water utilities and assessment of wastewater services; and the management of drinking water utilities and assessment of drinking water services.

The meeting was supported by the World Bank Institute, InWent, the French Agency for Development, the French Minister for sustainable development, the African Water Association, the National Water and Sewerage Corporation of Uganda, the French NGO Programme Solidarité Eau, the national body for water of Morocco and the Water and Sanitation Programme.

This workshop is one of a series of meetings on water service governance. The first was held for a francophone audience in Rabat, earlier this year. At the Kampala session, Rabat participants shared their experiences – some had begun to establish committees to conduct testing activities – and planned a road map. The standards will be tested in 10 African sites, for a period of three years.

Working together for road safety

The 7th UN Road Safety Collaboration (UN RSC) meeting, held in October 2007 in Geneva, Switzerland, showed that road safety issues are high on the world agenda. The meeting provided an opportunity to discuss progress and next steps in preparation for the UN General Assembly in March 2008. Led by the World Health Organization, the UN RSC comprises eight UN organizations and 29 other international agencies working on road safety, including ISO.

Progress was given on the provision of technical support, policy development, advocacy initiatives, regional meetings, data collection and research and financial support. Manuals, recommendations and events have been prepared on a variety of road safety issues, in particular a document on “World Road Traffic Injury Prevention” and other initiatives covering helmet use, drinking and driving, use of seat belts, safer road infrastructure and much more.

During the meeting, ISO updated UN RSC members of a proposal for the establishment of a project committee to prepare management systems standards on road-traffic safety that has been submitted to ISO member bodies. Many UN RSC members present felt that an appropriate programme in this area could help fill a gap in their activities, and expressed a keen interest in the future of this initiative.


The fully networked car is back

ISO, IEC and ITU are organizing for the third consecutive year “the fully networked car” – an event focusing on information and communication technologies (ICT) in motor vehicles.

Taking place at one of the world’s leading automotive events – the Geneva International Motor Show – in March 2008, the event will comprise a workshop with demonstrations, and feature a keynote speech from Max Mosley, president of the Fédération Internationale de l’Auto- mobile and organizer of the Formula One world championship.

A new topic area for 2008 is ICT and the environment.

Authors wishing to present papers should contact: tsbcar@itu.int
Managing terminology and language resources

ISO/TC 37, Terminology and other language and content resources, held its annual meeting in August 2007, in Utah, USA. The future of the technical committee’s International Standards and the methods for their development, in particular for terminology, was among the overarching topics of the event.

Promoting ISO standards in the Philippines

In conjunction with the 13th ASEAN Consultative Committee for Standards and Quality Meeting (see World Scene), ISO Secretary-General Alan Bryden visited the ISO member for the Philippines, the Bureau of Product Standards (BPS).

A meeting with H.E. Gloria Macapagal Arroyo, President of the Republic, in the presence of Mr. Peter Favila, Secretary for Trade and Industry, gave the opportunity to promote the use of ISO standards in the country at the highest level and to review their contribution to current national needs, such as those related to food safety, environmental management, financial services, tourism or the building sector.

Mr. Bryden met key executives from industry and public authorities, as well as the media.

Addressing social responsibility in Asia

A workshop on the future ISO standard on social responsibility was held for the first time in Asia, in August 2007.

The workshop, held in Manila, the Philippines, was attended by representatives of industry, government and nongovernmental organizations, as well as consumer, labour, service, research and national standards bodies. Participants discussed the development of the future ISO standard, including the issues to be resolved at the next SR working group meeting in November 2007.

Recommendations were made on the length/density of the standard, language use, applicability to all organizations, definition agreements, certification, implementation, optimization of national mirror committees and reference to other relevant instruments.

A concern raised was the capability of Asian countries, composed mainly of small and medium-sized enterprises (SMEs), to comply with the standard. Participants suggested that a mechanism to encourage SME involvement in the development process be found. The workshop also drew attention to how the standard could address global diversity across national boundaries, geography and national legislation.

The workshop was organized by ISO, the Japanese Industrial Standards Committee and the Japanese Standards Association, and hosted by the Bureau of Product Standards of the Philippines. Thirty-nine representatives from nine ASEAN member countries, Fiji, Japan and the Republic of Korea participated.

For more information, contact: dev@iso.org

India welcomes plastics committee

Asia is showing an increasing interest in the work of ISO/TC 61. Plastics. It is no surprise then that the last four annual meetings of the committee have been held in Asia. This year, for the first time, the ISO/TC 61 annual meeting took place in India (Goa).

The meeting was held in September 2007 and hosted by the Bureau of Indian Standards, the ISO member for India, and the Indian plastics industry. About 250 delegates attended, including over 50 from both India and Japan.

The technical committee was pleased to award Mr. Laverne Dalgleish (Canada) and Mr. Huub Omloo (the Netherlands) with this year’s ISO/TC 61 Outstanding Service Award (photo below).

Mr. Laverne Dalgleish (centre left) and Mr. Huub Omloo (centre right) recipients of this year’s ISO/TC 61 Outstanding Service Award, with the presenters of the awards, Dr. Sam Eldin (Chair, SC 5), (left) and Dr. Bob MacFarlane (Chair, SC 9), (right).

Furthermore, during the meeting, Mr. Omloo conducted an extremely successful training session for working group convenors. Drawing on his first-hand experience as convenor of several working groups (SC 5/WG 11, SC 9/WG 8 and SC 9/WG 26), his goal was to help them effectively advance their work programmes using IT tools developed by the ISO Central Secretariat.
**Prof. Song Mingshun** is the Dean of the College of Economics and Management at China Jiliang University and the Chief Director of the programme on standardization. He is a member of the national technical committee for certification and accreditation (SAC/TC 261), and of the national technical committee for quality management in China (SAC/TC 151). He is also a scientific consultant of the China National Institute of Standardization and an economic consultant of the People’s Government of Zhejiang Province. Previously, Prof. Song obtained a Masters degree at Zhejiang University, and was a visiting scholar at the Physikalisch-Technische Bundesanstalt (national metrology institute) in Germany. Currently, he teaches courses on standardization principles, international standardization, quality management, international trade theory and the ILIAS e-learning platform (a Web-based learning management system).

**ISO Focus**: Firstly, our sincere congratulations, Prof. Song, on receiving the ISO Award for Higher Education in Standardization. To familiarize our readers, could you please describe the undergraduate programme in standardization at China Jiliang University?

**Prof. Song Mingshun**: The undergraduate programme on standardization at China Jiliang University is based on business discipline. The students are required to study and practice engineering and technology, including mathematics, computer science, physics, mechanical engineering, electronics, measurement and electrotechnology, among others. They must also study economics and management sciences, including macro- and micro-economics, international trade and management theory, marketing and financial management. In addition, they must take the courses listed in Figure 1.

**ISO Focus**: Standards are vehicles for the transfer of knowledge, technology and good business practices. How does China Jiliang University see the promotion of International Standards in education? What is the relationship between the University’s programme and the Chinese industry?

**Prof. Song Mingshun**: As mentioned above, students must follow a course on international standardization and practice their skills on the ILIAS e-learning platform. Students in senior classes are encouraged to take the “internal auditor of ISO 9001” examinations. More than 70% of graduates have obtained the internal auditor license based on ISO 9001:2000. To control and guarantee the quality of this pro-

**There are more than 30 universities in China engaged in standardization education which look to China Jiliang University to lead the way.**

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**Figure 1 - Main courses related to standardization.**

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<thead>
<tr>
<th>Curriculum</th>
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gramme, a teaching quality management system based on ISO 9001:2000 has been set up. The system operates with high efficiency and is certified to ISO 9001:2000 (photo below).

ISO Focus: Capacity building of education professionals is an essential factor of success. What can be done to raise awareness of the importance of international standardization among current and future teachers for technology, business and legal curricula? Do you have initiatives or plans to network with other Chinese universities?

Prof. Song Mingshun: We have written and published a series of books related to standardization that have been adopted as textbooks by more than 20 universities in China (See photo overleaf). Every semester, we offer a standardization course for students from eight universities in Hangzhou.

China Quality Daily, China Education Daily, Zhejiang Daily, and six other newspapers have reported on our standardization education programme on numerous occasions since 2000. In April 2007, I was invited to the studio of China Education Television to share our experience in higher education for standardization to the whole country!

At present, there are more than 30 universities in China engaged in standardization education which look to China Jiliang University to lead the way.

We have established contact with numerous organizations, including standardization bodies and business, that offer standardization internships which students in our programme must complete (photo, page 6, top right). Moreover, their officers or managers are often invited to give lectures on standardization at our university. More than 800 students have graduated from the undergraduate programme since 2000. About 95% of them are working in the field of standards in business, standardization organizations, and others. (Figure 2).

Figure 2 – Percentage of graduated students working in standardization jobs.
We are planning to organize a national seminar that will serve as a platform for mutual communication among universities involved in standardization education. The seminar to be held annually will promote the rapid development of standardization education and international standardization in China.

ISO Focus: In view of China’s expanding role in the global economy, what is the importance of International Standards for China in accessing world markets and facilitating global trade? To what extent can the Jiliang University programme encourage and support the use of International Standards by China?

Prof. Song Mingshun: In China, International Standards play a crucial role. They are key for Chinese goods to enter the international market. Standards constitute an important tool for eliminating technical barriers to trade. Finally, small and medium-sized enterprises will benefit from their role as disseminators of technological progress, and promoters of improved product quality.

Many of our graduates are now pursuing careers where they work in the adoption of International Standards by business. More than 1200 professionals have been trained on the adoption of International Standards for standardization organizations and companies. We have held three international forums and three national conferences on standardization. More than 50 foreign experts and 400 Chinese professionals have visited our university to discuss standardization issues (photo at right).

ISO Focus: How do you see the evolution of the undergraduate programme in standardization at China Jiliang University, both nationally and internationally? What advice, based on your experience, would you like to give educational establishments in other countries?

Prof. Song Mingshun: Our university has formulated a development strategy for standardization education (from 2005 to 2010). In this strategy, we put forward the following objectives:

- to improve the degree of internationalization of higher education in standardization;
- to improve the standardization curriculum and promote it widely to other domestic universities;
- to actively develop the graduate programme in standardization.

Based on our experience, we realize that it is very important to offer under-
graduate courses on standard principles, international standardization, quality certification, and quality management. It is also important to set up internships with standardization bodies and business for practical experience.

**Chinese university wins inaugural ISO Award for Higher Education in Standardization**

The China Jiliang University, People's Republic of China, is the first winner of the ISO Award for Higher Education in Standardization. The inaugural award was presented at the 30th ISO General Assembly.

Prof. Song Mingshun, Dean of the College of Management, received the award on behalf of the university for its undergraduate programme on standardization. Making the presentation, Dr. George Arnold, ISO Vice-President (policy) and Chair of the selection committee which had unanimously designated the China Jiliang University as the winner, said that the committee was particularly impressed by:

- the objectives and breadth of the programme;
- the efficiency and the diversity of the pedagogical tools developed and used in the programme;
- the follow-up of the students and the fact that they have taken up positions in very diverse organizations and industries.

The award comprises a certificate of appreciation and a cash prize of 15,000 Swiss francs. It is co-sponsored by ISO and the Japanese Industrial Standards Committee (JISC), the ISO member for Japan.

Students from the China Jiliang University undergraduate programme on standardization enjoy ISO's chocolates, on the occasion of the organization's 60th anniversary.
ISO announced the creation of the award in 2006 to encourage and recognize successful programmes in higher education on standardization. The ISO Award aims to raise awareness of the importance of standardization worldwide by supporting institutions of higher education that have developed and implemented successful programmes related to standardization as a tool to access world markets, transfer technology and promote good business practice and sustainable development.

The award selection committee consisted of eminent international personalities from academia, the economic sphere and the media.

Chair, **Dr. George Arnold**, ISO Vice-President (policy);
Deputy Director, Technology Services, US National Institute of Standards and Technology (NIST);

**Mr. Guillaume Chenevière**, Director, Media and Society Foundation;
Chairman, World Radio and Television Council;

**Dr. Barbara Ischinger**, Director, Directorate for Education, Organisation for Economic Co-operation and Development (OECD);

**Mr. Guy Sebban**, Secretary-General, International Chamber of Commerce (ICC);

**Prof. Masami Tanaka**, Director General, Japan Chemical Industry Association (JCIA); Vice-President, Japanese Industrial Standards Committee (JISC).

*Why International Standards are important – Members of the award selection committee share their views on the following two pages.*
Dr. George Arnold  
ISO Vice-President (policy);  
Deputy Director, Technology Services,  
US National Institute of Standards and Technology (NIST)

Mr. Guillaume Chenevière  
Director, Media and Society Foundation; Chairman, World Radio and Television Council

Dr. Barbara Ischinger  
Director, Directorate for Education, Organisation for Economic Co-operation and Development (OECD)

Standards provide the “invisible fabric” that allow modern society to function. They provide the technical and management underpinnings to facilitate safety and health, and they provide industry with the means to cost-effectively produce quality products and services that can interoperate with one another. The community of people around the world who create and ensure conformance to standards are part of a highly skilled, interdisciplinary profession. In most cases today, the unique skills required to work in this profession is learned through professional practice after graduating from university rather than as part of a university education. This makes it difficult for employers in industry and government to train enough qualified experts to meet the needs of a growing and ever-more-complex society. All of the nominees for the ISO Award for Higher Education provide an outstanding example of the contribution that universities around the world can make to meeting society’s growing need for professionals in our field.

Globalization gives a new dimension to International Standards. Not only do they increase their scope in the field of services, but they are the privileged instrument of global governance. The World Summit on the Information Society taught us that new technological developments are creating a world in which governments alone are unable to steer a sensible course of action. An improved governance of the Internet will not be possible without industry and civil society cooperating in the elaboration of related International Standards. The right to trustworthy, factual information – a basic human right in the information society – means universally recognized International Standards for the media, a perspective which may seem revolutionary today, but will become evident tomorrow. The benefits of standardization in most fields of human activity need to be widely taught by the institutions of higher education and the new ISO award is a good way to light up the path in that direction.

The promotion and use of International Standards is a thread that runs throughout much of the OECD’s work on education. Being able to fairly compare the performance of education systems is a cornerstone of our work and standardized international reporting of data education is vital for that. The success of the OECD’s Programme for International Student Assessment (PISA) is a clear demonstration of the benefits that can be gained.

But the benefits of International Standards go far beyond making statistical comparisons. Like most sectors nowadays, education operates globally, a prime example being the increase in cross-border provision of higher education. These changes offer great opportunities for students, the higher education community and societies but they also bring challenges for International Standards in systems of quality assurance, accreditation and recognition of qualifications. The publication in 2005 of our Guidelines for Quality Provision in Cross-border Higher Education is evidence of our commitment to help address this particular challenge.
The International Chamber of Commerce (ICC) congratulates ISO for the establishment of its Award for Higher Education in Standardization. With this award, ISO is making an invaluable contribution to raising awareness of international standardization as an integral part of the curriculum of higher education.

The need for International Standards increases as globalization advances. Standardization facilitates international trade, and facilitating international trade is the core mission of ICC, a global business body that speaks with authority on behalf of thousands of member companies from all sectors and in more than 130 countries.

Another advantage of standardization is that it reduces the need for additional regulation. ICC strongly believes that avoiding over-regulation through striking voluntary agreements, such as standards, is a better way forward for business.

Furthermore, standardization promotes innovation. It also stimulates the creation of new technologies. And it is through the diffusion of new technologies that we will help bridge the gap between developed and developing countries, one of the major challenges of our time.

Everybody understands the benefits of International Standards which facilitate world trade by increasing efficiency and promoting quality. Throughout the economic development process after World War II, Japanese industries learned of these benefits by trial and error as well as on-the-job training in real business practices.

Programmes on higher education in standardization give students consistent and comprehensive knowledge of standards and their related benefits to development processes, business applications and international trade. Knowledge of standards gives insight and understanding in business transactions and proves useful in today’s global world. I expect that ISO standards will contribute to progress by providing answers to many of the world’s challenges.

Disseminating the importance of International Standards among the world’s educational institutions and raising awareness of their benefits is the main goal of the ISO Award. The academic community should take advantage of this opportunity to share best practices on curriculum and pedagogical methods.
About the author

Dr. Sharif El-Araby started his professional career in 1981, when he joined the Arab Academy for Science and Technology (AASTMT) as a junior lecturer in the Maritime Engineering Department, after graduating from the faculty of engineering at Alexandria University in 1979. Dr. El-Araby has a diploma in quality engineering and a PhD in quality management from the University of Paisley in Scotland. He was also a senior lecturer for quality-related subjects at the college of engineering, AASTMT. In 1995, Dr. El-Araby was named Assistant Dean for the Quality and Productivity Institute at AASTMT, supervising and leading the institute’s activities. In 1997, he was promoted as Dean of the institute. In 2005, he became the Arab Academy’s Vice-president for quality assurance, in addition to his post as the Dean for the Productivity and Quality Institute.

The goal of the Productivity and Quality Institute (PQI), established in 1995, of the Arab Academy for Science, Technology and Maritime Transport (AASTMT) is to increase awareness of quality issues and of standards and their applications, in Egypt and other Arab countries.

PQI offers:
• training on up-to-date topics in quality, standards and other managerial issues;
• Diploma, Master’s and PhD degrees in quality management; and
• consultation for organizations desiring certification to ISO standards.

PQI is developing links with other Arab and international institutions to broaden the educational programmes on standardization in Arab countries and promote its economic benefits. The institute works enthusiastically to increase the number of graduates, while ensuring that course content and teaching load are compatible with the prerequisites of economic, environmental and social development.

Good business practice and sustainable development

Our educational programmes are enhanced according to the needs of standardization and quality management issues and the demands of future academic professional experts. We strive to increase technology transfers to firms and other institutions by ensuring that our educational programmes respond appropriately to social, industrial and technological needs. Our goal is ultimately to enable future graduates to access world markets, transfer technology, and promote good business practice and sustainable development.

PQI aims to consolidate and broaden international cooperation in the development of educational programmes, based on strategic alliances with international organizations. In addition, we focus on improving the academic staff’s awareness and understanding of standardization educational programmes to achieve quality and continuously increase professionalism.

Leader in the Arab world

PQI’s programmes for post-graduate degrees aim to provide graduates with expanded analytical skills to:
• address technical and managerial issues in quality management, and
• understand the role of standardization for technology, business and sustainable development.

We offer internationally registered training courses on quality and its application, such as the International Register of Certified Auditors (IRCA) certified lead auditor training courses for ISO

The PQI team is proud to be the first in the Arab world to introduce Lead Auditor courses, as an innovative solution to the requirements of the Arab community. The Chartered Quality Institute (CQI) registered courses offer students an understanding of business systems management. This will allow them to specify, define and improve the performance of business processes and identify a range of potential root causes.

In response to the global concern for the environment, PQI established an environmental management systems (EMS) programme whereby students can learn about the purpose, benefits and operational mechanisms of an EMS and the ISO 14000 family of standards on environmental management, as well as understand the role of auditors. Through an advanced and practical implementation of the ISO 14000 systems programme, the institute enhances awareness of environmental issues in the African continent.

“Our goal is to enable graduates to access markets, transfer technology, promote good business practice and sustainable development.”

We have also launched a series of training courses on conformity assessment to meet the needs of conformity assessment bodies in the Arab region. Moreover, we are developing an occupational diploma programme for “consultants in designing, establishing and documenting quality management systems according to the requirements of ISO standards”. PQI also organizes conferences on quality and standardization with the aim to promote a rapid development of the region.

The future of business

Due to its high profile and excellent image, PQI has formal professional relations with international entities, including CQI, Det Norske Veritas (DNV), the European Organization for Quality (EOQ), IRCA, Quality Management Institute (QMI), and others. Academically, the institute has links with international universities such as the University of West of England, the University of Strathclyde, the University of Central Florida, and others.

PQI offers consultancy services to organizations seeking to establish and implement quality, environmental, and health and safety systems. Moreover, the Institute undertakes productivity improvement projects, and manages downsizing and privatizing initiatives. Our pre-qualification in this domain contains a long list of companies in Egypt and the Arab world, in various sectors of manufacturing and service industries.

The sky is our limit

The PQI team has ambitious ideas, which it is working on together to implement. Among them, PQI is certifying other lead auditor courses for Food Safety Management Systems and the Occupational Health and Safety Assessment Series OHSAS 18001. The institute is also negotiating with IRCA to acquire its agency as a certifying body in Egypt and the Arab region.

We are in the phase of establishing an agreement between Kuwait and Egypt in the field of standardization, where the “quality laboratories departments of public authority for industry” in Kuwait can exchange information with PQI. We are also inaugurating a project resulting from three years of collaborative partnership between the National Quality Institute (NQI), PQI and CQI in the UK. The project, funded by the Egyptian Industrial Modernization Centre (IMC), aims to create a business plan for NQI, as the national institute in Egypt responsible for the deployment of quality concepts and initiatives.

PQI is enthusiastically finalizing the launching of the CQI registered Diploma in Quality Assurance and Management in Egypt and the Arab region. PQI is also deploying the Quality Infrastructure Expert Certificate that will enable participants from different fields and diverse career objectives to benefit from the latest information on the four pillars of quality: quality management, metrology, standardization and testing.

The PQI team has taken the responsibility of building awareness on quality and standardization issues in the Arab region, with excellence as our ever-evolving target.
A French University: Encouraging hands-on experience

by Jean-Pierre Caliste and Gilbert Farges, Professors and researchers at the University of Technology of Compiègne

About the authors

Jean-Pierre Caliste, after more than 25 years of activities in metrology organization (Bureau National de Métrologie), testing laboratory (Laboratoire National d’Essais), management of the national quality policy (Ministry of industry, Mouvement Français pour la Qualité), is currently a professor and researcher at the University of Technology of Compiègne (UTC), where he is responsible for the Master NQCE and co-responsible for the Master MQ. Prof. Caliste conducts expertise and researches about quality approaches for services, more specifically for public administrations, research laboratories, training organizations and healthcare activities.

Gilbert Farges, who holds a PhD in engineering, is a professor and researcher at UTC specializing in biomedical processes (biomedical sensors and equipments, quality and safety of the medical dispositive, pre-standardization researches and standardization). Prof. Farges is responsible for training in biomedical technology and quality management for researchers, hospital managers, biomedical technicians and engineers. He is co-responsible for the Master MQ and collaborates with the UMR6600 laboratory for biomechanics and biomedical engineering. Since 2000, Prof. Farges manages quality approaches and networks for research and training activities (http://www.utc.fr/qualite-recherche).

*) UMR : “Unité Mixte de Recherche”, joint CNRS and University laboratory.

In line with the scale developed by the European harmonization of higher education, which introduced standards for Bachelor’s, Master’s and Doctorate degrees (see Box overleaf), the University of Technology of Compiègne (UTC) in France established a Master’s degree in quality management (MQ), as an option of its Master’s of Sciences and Technology.

Since 1992, the Master’s programme NQCE (Normalisation, qualité, certification et essais), on standardization, quality, certification and testing, trains professionals seeking to learn and develop competencies to become standardization and/or quality managers within companies, healthcare or public services organizations.

The Master’s programme NQCE has been periodically accredited since its inception by the Conférence des Grandes Ecoles (a conference of the most prestigious higher education institutions), up to the end of 2007. It is one of the two accredited Master’s of UTC.

The purpose of a Master’s MQ, as with Master’s NQCE, is to teach students to become specialists capable of applying standardization management and/or quality management for improving the performance of organizations.

Two different paths for standardization Master’s

These two programmes are available in French and open to foreign students with a good command of English and a satisfactory level of French. A large part of the courses are translated into English.
The programmes are organized in teaching units (TU). Each TU is equal to five credits in the European Credit Transfer and Accumulation System (ECTS), and consists of lectures/courses, and group and individual projects and evaluations.

The Master’s NQCE takes 12 months to complete, and includes six months of professional work experience. The Master’s MQ lasts nine months, with four months of hands-on experience working for a company.

During the 2005-2006 academic year, we piloted an e-learning version of the Master’s NQCE. Following positive results, we are now repeating the session, starting 2007.

**European higher education**

Under the new European harmonization system launched in 1998 by France, Germany, Spain and the United Kingdom, higher education will be organized in semesters and study modules recognized throughout Europe. The system gives higher education a clear structure: a Bachelor’s degree on completion of three years’ study, a Master’s at the end of five years and a Doctorate after eight years.

This European Higher Education Area is due to be completed by 2010. Already successful trials in France have resulted in lowered drop-out rates and increased successful entries.

According to the French law on the validation of experience (Validation des Acquis de l’Expérience – VAE), it is possible for an applicant to obtain the diploma of Master’s MQ or Master’s NQCE based on their work experience.

The courses cover a diversity of subjects including quality, statistics and metrology. In box (at right) are the different courses included within the NQCE and MQ Masters’ programmes.

**Practical experience**

Students of the Master’s MQ and Master’s NQCE are required to work for a limited period within a company (four and six months respectively), during which they can put into practice what they have learnt. This applies in particular to technology processes, manufacturing maintenance, and improvement of sustainable development performance in different sectors of activities. In 2007, we were in contact with more than 150 French and European companies, contributing to a fruitful partnership for the education of professionals.

**Using technology as an advantage**

A Web site (internet and extranet), [http://www.utc.fr/Mastermq](http://www.utc.fr/Mastermq), gives students, administrative bodies and professors up-to-date information about the monitoring process of completed training. Work by students is evaluated and stored on the same Web site. Students can also access information from graduates of previous years to compare and share experiences. According to the schedule of each TU, the courses are uploaded online in PDF version. WIFI access allows students to follow courses and take notes directly on their computers. All evaluations are uploaded on the site immediately after the completion of each TU. Access is always maintained for the former students.

Objectives are defined for each TU and transformed into targeted knowledge, aptitudes, and skills. Based on these, all students can make self-assessments before, during and after the delivery of the course. After the completion of a TU, a general evaluation between the TU teacher and student permits them to analyse strengths and weaknesses, and take corrective action if necessary. Students’ suggestions are always requested and implemented whenever possible.

**International cooperation**

Based on the current programme which is adapted to healthcare activities, cooperation has been established with the University of Montreal. A joint diploma will be awarded upon successful completion to candidates taking this option (QUEOPS).

We have trained 200 students since 1992. More than 90 % have successfully obtained a diploma, and more than 85 % are employed. A large international participation reinforces intercultural exchanges. Among the countries represented are: Algeria; Brazil; China; Côte-d’Ivoire; Gabon; Madagascar; Morocco; Lebanon; Russia; Senegal; Syria; Tunisia; United Kingdom.

1) According to available information.

**Courses (Master’s NQCE and Master’s MQ):**

- Performance and improvement management
- Standardization, metrology, testing and international trade
- Structures and functions of metrological services
- Management, organizations and systems
- Risk management within organizations
- Information system management
- Case study
- Other management systems
- Statistics
- Quality management system
A Japanese university: Educating standardization strategists in business

by Yuji Furukawa,
Dean and Professor of the Professional Graduate School of Technology Management

About the author

Professor Yuji Furukawa, now the Dean and Professor of the Graduate School of Technology Management, Tokyo University of Agriculture and Technology, and the Professor Emeritus of Tokyo Metropolitan University, is a well-known leader of both Japanese academic and governmental society. He is a member of Science Council of Japan, Policy Assessment Member of the Council for Science and Technology Policy, Japanese Head of IMS (Intelligent Manufacturing Systems) International Program, Chairman of the Industrial Cluster (TAMA, Greater Tokyo Initiative), and a member of the Industrial Structure Committee of METI (Ministry of Economics, Trade & Industry). He was the former Chairman of the Industrial Automation Standardization Committee of METI and contributed much to propose and utilize ISO standardization.

Management of technology

Figure 1 shows an MOT programme, “Strategic management of industrial standardization and intellectual property”. The basics and applications of industrial standardization, including ISO activities, related policy and strategy with respect to their risk and reward, are composed of the following subjects.

Strategic standardization is a key issue for manufacturers. Incorrect information on de-facto or de-jure issues, for example, could result in the collapse of a business. Professionals who specialize in strategic standardization are often trained on the job. They usually begin working with in-house company standards, and progressively deal with ISO standards. After some time and experience, and once they have become members of the company’s board, they can take charge of standard policy decisions.

Engineering schools already teach a variety of courses on standardization. In Japan and perhaps in other countries, however, there are no academic programmes to systematically train professionals on strategic industrial standardization, despite there being a demand from business.

Taking these trends into account, the Tokyo University of Agriculture and Technology (TUAT) opened the Professional Graduate School of Technology Management (MOT) in 2005. Its main goal is to train experienced engineers on the latest technological and management strategies (see Figure 1 overleaf), leading them on a path to become future chief executives or technology and/or information officers. The programmes pay particular attention to business standing and technology, and to business risk and reward. Thus, the graduates will be able to forecast/hedge technological risks quantitatively, adapting scientific and management knowledge to attain rewards.

Standardization policy and strategy area

- Standardization strategy, by Prof. T. Yamamoto
- Industrial standards, by Prof. M. Tsutsumi
- Standardization policy, by Prof. M. Takagi

Specific technology area

- Manufacturing systems standardization, by Prof. Y. Furukawa
- Products life cycle standards, by Prof. Y. Furukawa
- Total Quality Management and ISO 9000, by Prof. R. Kaneko
Main Focus

- Environmental standards policy, by Prof. H. Kameyama
- Environment and ISO 14000, by Prof. N. Kudo
- Safety and security standards, by Prof. M. Nakamura

Company’s practices of strategic standardization

- Prof. T. Kato (Former President of Fuji Electric Co.) and Prof. K. Isayama (Former Vice President of Nissan Motor Car Co.) give their practices and experiences.

Students must complete a minimum of 46 credits during two years (divided into four semesters), and specific projects (field and case study, and business plan) are considered as required subjects.

Students interested in the “Strategic management of industrial standardization” programme can select several subjects from the list above. In addition, they have to take more than 10 subjects from the programme outlined in Figure 1. Upon successful completion of the MOT programme, candidates are awarded a Master of Management of Technology, which receives approval by the Ministry of Education of Japan.

Real business situations

Three years after its establishment, the TUAT/MOT programme has received very positive evaluations from renowned Japanese manufacturing companies. The programme accepts some 50 students per year, of which one-fifth are interested in strategic standardization.

For example, one of our graduates who came from Citizen Watch Co. took the strategic management of industrial standardization and intellectual property programme. He completed his business plan on “Wearable watch development for health diagnosis”, and proposed a concept, its technological feasibility, the required amount of investment, its feasible market size, the related intellectual property rights strategy, and a de facto/ de jure standard trend and policy to be used for building alliances with strategic partners. As a case study, he surveyed Seiko and Casio – strong competitors of Citizen Watch Co. As a field study, he carefully checked the trend of standardization for radio communication systems and related patents. The example shows that the programme can successfully train experienced engineers to learn, exercise and practice how to take advantage of standardization in a business environment.

Educating the world through the Web

One of the interesting features of TUAT/MOT is the thorough use of e-learning and technology. As shown in Figure 2, all of the required materials and information are listed and stored in a computer programme named JENZAVAVER. Both professors and registered students can access and extract information. Lectures are given at either the main urban campus or the downtown campus, both connected by real time TV. Professors and students can therefore discuss together even if they are physically apart. In addition, all lectures are partially uploaded two or three days later, to enable students who could not attend the class to learn via the Web anywhere in the world.

“The programmes pay particular attention to business standing and technology, and to business risk and reward.”

All the lectures are currently given in Japanese. In the near future, however, we expect to have them available in English. The lectures could then be delivered worldwide through internet education systems. As there is a high demand for education on industrial standardization strategy in Asian countries, we are planning to put this plan into practice. TUAT/MOT has recently agreed on a programme exchange with Shanghai Traffic University. We look forward to this first trial.

Figure 1 – MOT programmes of the TUAT Graduate School.

Figure 2 – E-learning system of the graduate school TUAT.
As a result of intensified global competition, rapid technological innovation and the continuous creation of market demand in today’s world, the role of standards and our understanding of the concept have changed. The traditional advantages of standardization are shifting in line with emerging knowledge-based industries. Furthermore, knowledge of the value and impact of standardization should not be limited to technical engineering practitioners, but should also be available to typical university students, the next generation of professionals.

“Some universities want the programme to be compulsory for students majoring in engineering.”

In recognition of the increasingly important role of standardization, the government of the Republic of Korea established two “Five-year National Standards Master Plans” in 2001 and 2006 to develop an advanced standardization system. Nurturing standards experts is a major agenda item under these plans.

A multidisciplinary programme

The Korean Standards Association (KSA) is in charge of the overall operation of the University Education Programme on Standardization (UEPS), from its development to its implementation. For this purpose, KSA established the Standards Education Development Committee in 2004, composed of participating professors and lecturers.

To create a multidisciplinary programme, the committee and KSA networked with standards experts from various fields in the Republic of Korea, encouraging them to participate as lecturers and to develop a curriculum with textbooks and educational materials.

The government of the Republic of Korea financially supports UEPS under the “National Standards Master Plans.” With the involvement of universities, expert groups, and KSA, UEPS represents a valuable example of government and private sector cooperation.

Teaching methodology

UEPS is a regular one-semester class, accounting for two or three credits. The programme deals with general aspects of standards at business and at national and international levels, as well as with their increasing importance in the world economy.

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Main Focus

In addition to academic work, students appreciate field trips to research centres and companies (Photo on previous page). They are enthusiastic to see for themselves how standards are actually used.

The universe of standardization in one textbook

UEPS is designed to expose students to various standardization topics, covering basic concepts to in-depth knowledge. KSA, in cooperation with the Standards Education Development Committee, has developed an overall curriculum structure for the programme, and started to define the contents at the kick-off meeting in March 2004.

A unified textbook entitled Future Society and Standards is distributed to enrolled students free of charge. The book, co-authored and revised by 29 experts in different fields, is composed of eight major chapters (Cover photo above).

Furthermore, educational materials (PowerPoint presentations) based on this textbook are available online free of charge to lecturers and universities, so that students can study the contents in advance or review them at a later date. Based on these materials, lecturers can create their own teaching tools and share them online. Universities already post examples of exercises for mid-term and final examinations on the “Examination Bank” section of the Web site.

Major achievements

Since UEPS was first introduced at 11 universities, the number of participating schools and students has been growing steadily (see Figure 1). Overall, around 16 000 undergraduate students have now begun to recognize the importance of standardization (Figure 2). Some participating universities are trying to adopt UEPS as an ABEEEK (Accreditation Board for Engineering Education of Korea) certified programme, and make it compulsory for students majoring in engineering.

UEPS has given students and professors an opportunity to renew their awareness of standards, and develop a common understanding on standards education. Consequently, it has been proposed that standards education be extended to students majoring in the social sciences such as management and law. There is also a need for technology-based standards education at the graduate school level.

Future development

Sharing education materials online will contribute to the creation of Web-based e-learning. With the contents of the Future Society and Standards textbook, e-learning, combining video lectures and online classes, will be developed to enable standards education at any time, regardless of location.

Using UEPS as a base, cooperation and development methodology for standards education is currently being discussed with other countries. The Asia-Pacific Economic Cooperation Sub-Committee on Standards Conformance (APEC SCSC) standards education project gathers opinions from member countries and discusses cooperation methods focused on establishing an education model and developing its contents.

In addition, a standards education system that can be shared internationally will be developed through a cooperative system with the International Committee for Education about Standardization (ICES). The Republic of Korea, China and Japan have agreed to cooperate on this area through the Northeast Standard Cooperation Forum (S-Dialogue).

The Republic of Korea will enhance positive awareness on the benefits of standards for the next generation through education on their importance and diversity. Based on its experience, the Republic of Korea hopes to explore ways to develop standards education, together with other countries and standards-related organizations, and establish consensus on this area.
The Rotterdam School of Management (RSM) of the Erasmus University in The Netherlands is an internationally top-ranked business school focused on developing leaders for global, sustainable business. Offering an array of Bachelor’s (BA), Master’s (MA) and executive education (MBA) programmes, it is one of the world’s largest business schools in the number of both students and research faculty. In order to achieve and maintain its top rank, the school benchmarks both its educational and research activities against other major business schools.

Ultimately, the objective of the RSM Erasmus University is not only to be active in the more “common” aspects of business, but to distinguish itself by addressing business issues not considered by other schools. Standardization management is one of these issues.

Bachelor’s students’ A to Z for strategic research

RSM Erasmus University offers several elective courses with standardization management as the main or one of the topics addressed. In their third year, students write a Bachelor thesis in groups of three. The objective is for students to learn how to design, conduct and report a research project. Each year, 24 students devote their thesis to “standardization strategy”, so as to obtain a general overview of the subject and the necessary knowledge and skills to develop a standardization strategy for an organization or group of organizations.

Students learn about standardization through self-study of the management book on standardization developed by the school, as well as presentations and in-class discussions. Research topics differ per group. Past theses have included themes as varied as mass customization of jeans, professional soccer licensing, and product quality of cannabis (see Box, overleaf, for more examples).

“Past theses have included themes as varied as mass customization of jeans and professional soccer licensing.”

The research groups have to review relevant scientific and professional literature, and most will have to interview practitioners. Some groups use additional research and statistical methods for gathering data, such as street interviews with consumers or internet surveys. The findings are then presented to a jury consisting of an RSM Erasmus University researcher, as well as the General Director and the Head of New Business Development of NEN, the ISO member body for The Netherlands (The Netherlands Standardization Institute). Some students have managed to get their results published in professional journals, and one group wrote their thesis as a scientific paper which was accepted for a scientific conference of the European Academy for Standardization (EURAS).
Masters in the classroom

Standardization is also part of the courses within the Master electives on “Business Process Excellence” and “Innovation in Services”. As of 2008, RSM Erasmus University intends to offer a new elective on standardization management. The Master electives are given in English and are also open to students from 61 partner business schools all over the world.

“At the RSM Erasmus University, research and education are interrelated, and developed in cooperation with industry.”

In 2006, 22 students devoted their Master’s thesis to standardization. In most cases, the thesis project was combined with an internship in a company or other organization. Thesis topics included:

• Effects of job standardization on sales force turnover – The case of Nike Europe
• Impact of ISO 9001:2000 on product innovation
• Implementing a standardized distribution model for multinational companies – The case of General Electric Plastics
• Standards for outsourcing of business services
• Dominant design or multiple designs? – A case study on factors contributing to multiple designs in the Flash Memory Card Industry
• Implementing the Hazard Analysis and Critical Control Point (HACCP) food safety standard in a small company

Numerous articles based on Master’s theses have been published in professional and scientific journals. Some students have received first and second places in national thesis awards on service and quality management.

ISO Member for The Netherlands paves the way

The RSM Erasmus University’s Chair in Standardization within the department of Management of Technology and Innovation has been made possible by NEN. Currently there is a vacancy for a Professor in Standardization, previously held by Prof.dr.ir. C.A.J. Simons (1994-2000) and Prof.dr. A.J. Feilzer (2001-2006).

NEN’s support has enabled the Chair to get involved in the advancement of standardization education outside RSM Erasmus University. These activities include developing teaching materials (books, teaching cases, e-learning modules), coordinating an academic network of standardization researchers in The Netherlands, and actively participating in the International Committee for Education about Standardization (ICES) (See the article on page 25) and in the Asia Link project on Standardization in Companies and Markets (See the article on page 21).

At RSM Erasmus University, research and education are interrelated, and developed in cooperation with industry. Current research includes the supervision of four PhD projects on standardization. These and other research activities have resulted in more than 200 publications, including several books.

For more information, see:

• http://www.rsm.nl/standardization
• http://www.rsm.nl/hdevries

Publications on the school’s activities in standardization education include:


ISO Focus November 2007
Standardization goes East
the European-Asian academic network
International and multimedia-based

by Prof.-Dr. Ing. Wilfried Hesser, and Wenke Siedersleben, M.Sc., M.A

Introduction: Standardization and globalization

The term globalization refers to the ever increasing interdependence of economic, social, technological, cultural and political spheres in today’s world. Economically, globalization refers to the global or trans-national convergence of goods and services, labour, capital and technology – the virtually international and globally distributed value chain.

The continuing work on contracts, such as the General Agreement on Tariffs and Trade (GATT), focussing on goods and investment, or the General Agreement on Trade in Services (GATS) and the Trade-Related Aspects of Intellectual Property Rights (TRIPS), has converged under the World Trade Organization (WTO) since 1994. The WTO has taken on the task of constantly fostering and reinforcing the multilateral global world trade system. The function of the WTO is to trigger trade liberalization by new rule-making in an economically globalized world. This process is based on the basic principles of trading systems, which are a) non-discrimination, b) reciprocity, c) transparency, d) binding and enforceable commitments, and e) fair competition. An important contribution to this is the Agreement on Technical Barriers to Trade (TBT), which was passed in 1995. The TBT Agreement distinguishes between technical trade barriers arising from differing legal requirements, different standards and discrepancies in testing and certification procedures worldwide.

The European-Asian overall trade accounts for EUR 230 Billion, up to 30% of the overall world trade. The European Union has become the third most important trading partner. Even though standardization is addressed under the WTO and the ASEAN programme with regard to trade and quality, the knowledge corpus on international and European standardization in Asia needs to be constantly enhanced. International and specifically European standardization issues therefore need to enter both academic and non-academic teaching as well as further education. In order to expose researchers and professionals in Asian countries to all the different approaches to standards setting (i.e. to make sure that the specific European approach is adequately represented), and to support bilateral or multi-lateral (EU-Asian partner countries) barrier-free trade, tertiary-level education and training in European standardization is essential. A knowledge transfer via academic teaching and education in that respect needs to be expanded, especially since Europe plays an economically increasing role in the Asian region.

The educational dimension and standardization: Crossing academic disciplines

Historically, the subject of standardization was interlinked, firstly, with national industrial development, secondly, with internationalization, and thirdly, connected to engineering sciences. During industrialization, the efforts of company standardization at the national level were directed towards the development of safety standards in engineering. Rationalization in industrial production became the focus of standardization as industrialization progressed.

In the 20th century, with the implementation of computer-aided design and computer-integrated manufacturing concepts, there was need for standardization and interoperability. Nowadays, debates concentrate mainly on standards and their implications for competitive

policy, international trade and company strategies. Standardization is an instrument of strategic corporate management and increasingly attracts the attention of company executives.

Additionally, standards have become a topic for teaching and research in international, European and national law. Standards play a prominent role in the legal sphere: one example of this is the essential requirements of the European Union. These specify basic demands in the fields of consumer and environmental protection and industrial product safety that are allowed to be offered for sale in the European Union. Product liability, quality issues and non-compliance to standards are particularly relevant for international companies operating in global markets. Thus, standardization represents an important steering instrument for economic policy based on European law, with implications for the engineering and business sector and vice versa.

Educational priority lies therefore in providing engineers, business managers and economists with some insights into how standardization permeates a wide range of subjects. Prof. Dr. Ing. Wilfried Hesser, Helmut Schmidt University, University of Federal Armed Forces Hamburg, undertook the first initiative, which combined all different academic disciplines, creating a lectures series and content ranging from engineering and law to business.

The project: Standardization in companies and markets

The European Union EU-Asia Link programme took on the task of strengthening European-Asian university cooperation. During the first application round in 2002, applications were submitted to the European Commission, External Relations, in Brussels, Belgium. One of those selected was the e-learning project called “Standardization in companies and markets” from Wilfried Hesser, Professor for Standardization at Helmut Schmidt University, Hamburg, Germany, managed jointly with Henk de Vries and Albert Feilzer of Erasmus University Rotterdam, Netherlands. With an overall budget of 400,000, it has been coordinated and managed by Wenke Siedersleben in Hamburg since January 2004.

This project represents, for the first time, a Web-based lecture series using e-learning and focussing on standardization in Companies and Markets. The lecture series has been developed by an international team of academics from universities in China, Germany, Indonesia, The Netherlands, Sri Lanka and Vietnam.

The results are twofold: firstly, the textbook “Standardization in companies and markets”, comprising approximately 800 pages and published in English, and secondly, an e-learning-based lecture series on the Internet. The e-lectures have a modular structure and are based on the contents of the textbook. The lectures series, however, offers a number of additional features, including multiple-choice tests, frequently asked questions (FAQs), keywords, exercises and a glossary. The Asian partner uni-
versities offer the entire curriculum as part of a Master’s degree course for engineering and business students. The technological basis for this lecture series is the open-source e-learning platform of Helmut Schmidt University in Hamburg, Germany.

E-learning has the potential to deliver benefits for innovative teaching and learning. It does this by increasing the speed and degree of disseminating knowledge, by facilitating knowledge and skills, by providing flexible learning opportunities for students and learning on-demand, and by creating new collaborative learning opportunities.

“Standardization is an instrument of strategic corporate management.”

The open source e-learning platform ILIAS is a Web-based learning management system (LMS) that is available as Open Source. It brings together tools for learning, authoring, information pooling and cooperative teaching and learning and course administration. E-learning at Helmut Schmidt University has been implemented for about five years. The overall participation is almost 30%, combining almost all faculties at the university.

The e-learning modules have a multimedia-based interactive design covering all the latest topics in the field of standardization. The lecture series, with its total of 22 online units, can be accessed via the e-learning platform of the Helmut Schmidt University via www.asia-link-standardisation.de and www.pro-norm.de. University teachers and students, as well as learners and instructors from industry and commerce, can organize their own individual online courses, matching their study interests and learning concept.

The textbook

The textbook contains chapters on European and international standardization, including the history and principles of standardization. It is the first interdisciplinary book on standardization in companies and markets and also the most comprehensive.

Designed as a textbook, the work includes numerous illustrations and is written in a style that is easily understood by all. Among the topics dealt with are economic strategies of standardization, the role of standards in corporate management, the importance of

About the authors

Wilfried Hesser
Wilfried Hesser is Professor of Standardization and currently holds the Chair of Standardization and Technical Drawing at the Helmut Schmidt University, Hamburg. He has authored many research reports and scientific articles, including his most recent publication: Final report for the European Union. The advantage of standardization as a management instrument in companies.

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Wenke Siedersleben
Wenke Siedersleben graduated from the University of Oxford and the Humboldt University, Berlin, in sociology, political science and educational studies, and started working in January 2004 as EU-Asia Link project manager. She published papers on the European Union’s education policy, the G8/G7 Summit and Global Governance, International and Intercultural Project-management.

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Curriculum of “Standardization in companies and markets”

01 Fundamentals of standards and standardization
02 History of standards and standardization – an Introduction
03 Economic aspects of standardization
04 Development of standards
05 Product development and design
06 Standardization inside a company – a strategic perspective
07 External standardization as a company strategy
08 Standardization and innovation
09 International standardization
10 Standardization and international law
11 The European standardization regulatory framework
12 The European Union and its standardization policy
13 Standardization and Law in the Federal Republic of Germany
14 The EU and its New Approach
15 Conformity assessment
16 Standardization issues in developing countries and countries in transition
17 Metrological measurement
18 Case: Information and communication technology (ICT) standardization
19 Case: mobile telecommunications in Indonesia
20 Quality management and ISO 9001:2001 development
21 ISO 14000: 2004 implementation
22 Standardization in agriculture
standardization for international economic relations in a global world, implementation issues concerning European and national law, as well as technical applications and case studies.

The curriculum

These lectures realized as teaching units cover different business sectors, different forms of standardization (company standardization, formal standardization at the national, regional and global level, standardization by industrial consortia), different scientific approaches (e.g. economics, history, law, business studies), different business issues (e.g. how to meet requirements in standards, how to balance “standard” with variety, benefits and costs of standardization, management of standardization), and typical characteristics of the two regions, Europe and Asia. For a list of curriculum topics see Box on page 23.

The teaching units were conducted in the following form:
- Teaching units presented in chapters;
- Volume of text: approximately 20-30 pages;
- Figures, graphics: 20-30 per unit;
- Frequently asked questions: 10-15 per unit;
- Multiple-choice test, 10-15 questions;
- Exercises;
- Glossaries.

Sustainability of the project

Given the widespread availability of modern information technologies, costs will nevertheless occur for maintaining and updating the textbook and e-content at a non-profit level. Both projects results have been available since the beginning of 2007 via the following Web sites: www.pro-norm.de and www.asia-link-standardisation.de.

The standardization in companies and markets curriculum can be conceptualized as blended-learning, thus mixing/blending Web-based and face-to-face teaching and learning phases. This project’s e-learning concept should not replace face-to-face academic teaching and learning, but rather enhance current academic teaching and learning.

“Standardization represents an important steering instrument for economic policy.”

The tenders

Product 1: Standardization in companies and markets. Course for self-qualification, consisting of 22 teaching units. This course comprises lectures, images, FAQs, multiple choice (MC) tests, exercises and discussion forum. It is available online for download.

Product 2: Blended learning model. Blended learning is a combined teaching/study concept that represents a didactically meaningful synthesis of campus-based events such as workshops and virtual teaching and study based on a modern e-learning management system, ILIAS. Workshops are conducted by highly qualified experts.

Product 3: Consultant and lecturer network. Lecturers and independent consultants have access to the entire contents of the lectures. Texts, PowerPoint images, original files for FAQs, exercises, as well as MC tests are available online for download.

Product 4: Franchising system. Here you can start your own enterprise. We set up your own e-teaching and study management system. You have your own corporate identity to implement your personal business. You can set up your worldwide training business to be independent of time and place. Certified clients can also operate as franchisees.

The outlook

The Asia Link projects working relations have been fruitful and based on mutual trust. They form the basis for further cooperation within this European-Asian academic network on standardization. The working atmosphere was cooperative and productive. Events and workshop results and the budget corresponded exactly with the original project design. Based on the experience of the project, there are now different ideas for further cooperation and a two-fold objective may be pursued here via:

1. Academic exchange
2. Knowledge transfer in the field of standardization.

“E-learning has the potential to deliver benefits for innovative teaching and learning.”

Future initiatives could be:

Level 1: Summer school and/or exchange programme

The idea is to bring together students who are studying the option of “standardization within companies and markets” as part of a summer school, where they will be taught by Asian and European professors.

Level 2: PhD students

The aim is to initiate a research network in collaboration with the Asian professors. The focus is on supporting a Euro-Asian exchange of knowledge on standardization. The subject of standardization within companies and markets in the context of a global world is to occupy the central position of the research work. Each PhD student will receive academic support in his or her research work from two professors on the basis of a project management plan.

Level 3: Professors and academics

In order to establish and consolidate a network of knowledge and research, it will be essential for an exchange of academics and professors to take place.

The basics are already in place. However, the network and the personal contacts made in the course of this project should now be further developed.
A cademics, business experts and people from standards bodies from Asia, Europe and the Americas met in February 2007 in Delft, The Netherlands, to share experiences on standardization education. The workshop was an initiative of the International Committee for Education about Standardization (ICES), and was organized by Tineke Egyedi (Delft University of Technology) and Henk de Vries (Erasmus University Rotterdam). Some findings of this workshop are presented below.

**Keeping up with the times**

In 2006, 46 universities in the Republic of Korea offered courses on standardization, while in other countries the number of universities offering these was very limited. In the USA, only three universities offer a separate standardization course. In Europe, the number of universities with courses on offering ranges from 10 to 30. The major share of academic education on standardization can be found in Asia: mainly in China, Japan and the Republic of Korea, but also in Indonesia, Sri Lanka, Thailand and Vietnam.

Non-academic teaching is offered in many countries, mainly in the form of courses for technicians about specific standards. Though some courses attract many participants, the supply of education is very restricted compared to the number of people involved in standardization.

Standardization activities are carried out by people who may need specific knowledge and/or skills to do their job. Most participants in standardization committees have had very little, if any, training. They are usually not aware that they can take advantage of training and education.

At the management level, knowledge about standardization is needed, in particular, on the relevance of standards for business. John Hill, Standards Manager of Sun Microsystems and initiator of ICES, argues that “Companies as well as standards bodies need well-educated standardization experts. Standardization processes should keep up with the times. Who will progress the theory and practice of standardization? Will universities provide us with such people?”

The workshop participants identified an enormous gap between latent and manifest needs for standardization education. Countries like the Republic of Korea and Thailand show that to bridge this gap a national strategy is needed, as well as cooperation among government, industry, the national standards body, academia and educational institutions.

Another lesson learnt during the workshop is that it is easier to talk about educational content (i.e. in terms of there being a need for ...) than identifying the source of educational needs (i.e. why should one have knowledge of standardization?). Nevertheless, the latter should be the starting point of standardization education. It determines which audience should be targeted and what should be taught (learning objectives).

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Audiences and learning objectives

Education in the Republic of Korea started off by targeting engineering students. However, there are many target groups for standardization education. In a brainstorm session, the workshop came up with a list of potential users who would benefit from standardization education, i.e.:

- from audiences in the regular educational system (e.g. primary school, secondary school, vocational training, university students including MBA students, PhD students and post-docs, teachers and university professors) to job training (e.g. for standards developers, implementers, corporate managers, managers of functional units such as purchasing departments, researchers, policy makers, public administration, lobbyists for an industry sector, and media people), and education for the wider public;
- within regular education, from audiences that require general education (e.g. cross-academic courses) to those who need specific education (e.g. students in engineering, business, medicine and law);
- from those who will make a full-time career out of standardization (which is an exception) to those who end up in this area at a later stage of their career.

People usually come into contact with standards via their profession (e.g. in a specific technical area). They may sometimes already be acquainted with specific standards, such as standards for technical drawing, or for safety of low voltage installations through regular education at the lower, intermediate or higher vocational level. However, in the long run, this knowledge will not suffice as new standards emerge and existing standards are changed or withdrawn.

So, once people really get involved in developing or applying standards in their professional life, they will need continuous education, e.g. by means of a course offered by a national standards body. The course content should then meet a set of interrelated learning objectives about the required attitude, skills and knowledge. Workshop participants mentioned examples of such learning objectives.

Contents of an academic curriculum

Standardization courses differ in the topics they address. Most curricula seem to be composed in a rather pragmatic way, strongly depending on the specific knowledge of the designer. In academic education on standardization, there is a choice between developing a separate course on standardization and integrating the subject in another course.

The interdisciplinary nature of standardization and the amount of relevant topics would seem to make a separate course worthwhile. In a three-hour interactive workshop session, using the group decision room facilities of “group decision support software” and 30 interconnected computers, workshop participants managed to achieve rough consensus about the main elements of such an academic course.

Available teaching materials

For those who would like to set up standardization education, a fair amount of books, e-learning environments, digitally available lectures and Internet courses, bibliographies and other educational material are available. The vast majority, however, is written in Chinese, Dutch, Japanese, Korean, Turkish, etc., and, as such, is not easily accessible. Only a small proportion is available in English.

Moreover, the workshop participants emphasized the need and possibility to present course content in a more
“fun” and “sexy” way. For example, case studies are fun and very useful to illustrate standardization issues, and invited speakers, in particular from industry, may liven up courses. Unfortunately, overall teaching cases are lacking which involve role playing and help students “experience” standardization.

“It is easier to talk about educational content than identify the source of educational needs.”

A notable exception is the e-learning course developed by ISO (see article by ISO Strategic Advisor, Dr. Daniele Gerundino, on page 39) which uses a teaching case, a simulation, for educating standardizers. Courses like these would also be useful for academic teaching and vice versa, with teaching material developed for academic teaching applicable in other educational settings.

Conclusions and future developments

An enormous gap exists between manifest and latent needs for standardization education. A main lesson to be learnt from some of the Asian countries is that the gap can be bridged, first with a strong national policy which may be part of a regional policy, and secondly by cooperation among government, industry, the national standards body, academia and other educational institutions. New initiatives can build upon experiences in other countries and the material already developed.

The increasing number of initiatives and activities that have taken place in the last three years indicates that there is a momentum for education on standardization. The National Institute of Standards and Technology (Gaithersburg, MD, USA) is seizing this momentum and is organizing the next ICES workshop which is scheduled for 21-22 February 2008.

For more information about ICES, see:
http://www.standards-education.org

Improved guidelines on implementing ISO 9001 in the education sector

by Rafael A. de Arrascaeta Farrando, Member of the group of experts which developed and edited IWA 2:2007


A conventional view would describe education as the mere transmission of knowledge. But that concept is changing rapidly, as it must. A more appropriate 21st century credo would be: “Education is the construction of sustainable integration processes based on individual needs and capacities.”

Failing to meet this need for a new mindset regarding education could make our communities unlivable within a generation, as vast sectors of the population find themselves excluded from full participation in civil society.

The alternative could be a future gravely undermined by failure to invest in the best available education. Police and fences will not be enough to protect us if our societies lack shared ethics built upon universal education. Effective implementation of ISO 9001 quality standards by educational institutions can play a key role in addressing this challenge.
Main Focus

The past as guide

As long ago as the late 19th century, integration of immigrants into the educational system was the cornerstone of broader social assimilation. Today’s needs are not substantially changed. We must now undertake to employ education as a central tool in the integration of a new kind of immigrants: “the people of cultural poverty”.

Expressed in somewhat crass terms, the message to actors in the educational marketplace might be: if social responsibility or quality principles are not reason enough to improve your processes, then do it out of fear.

Good news and bad

Most educational organizations take their responsibilities seriously as they pursue competent educators, appropriate planning and curricula, the best available methodologies and processes, and outstanding materials and infrastructure.

Nonetheless, educational organizations often fail to provide an adequate educational experience, or ultimately do not satisfy “learner expectations”.

This apparent paradox is possible because improving individual elements does not guarantee a programme’s success if corresponding synergies are absent. Implementation of a quality management system (QMS) for the educational organization can create the required synergies.

Why adopt ISO 9001:2000?

The ISO 9000 family is an international reference for quality management requirements in business-to-business dealings and has earned a worldwide reputation as a “generic management system standard”.

Generic means that the same standards can be applied to any organization and any product. In this context, the term “product” may include services in any sector, business enterprises, public administration, or governmental entity. No matter what the organization is or does, the ISO 9000 family spells out essential features of a quality management system.

Management system refers to a systematic approach to managing processes and/or activities, people, resources and infrastructure.

Quality management refers to activities aimed at meeting customer demands and applicable regulatory requirements, as well as efforts to continually improve the organization’s performance. Included here are steps taken to minimize the effects of product deficiencies and to continually improve product performance.

ISO 9001:2000 defines minimum requirements for a QMS. The standard specifies activities that need to be con-
sidered during implementation of the system. The requirements are applicable to all organizations. Continual improvement of the organization’s quality management system is a further requirement of the standard.

Why do we need IWA 2?

ISO 9001:2000 the best option for any organization – including educational institutions – seeking to establish a QMS that provides confidence in the conformity of a product or service to specified requirements. But as a generic standard, the Product Realization section of ISO 9001 must be tailored to meet specific operational needs. Some educational organizations have run into difficulties adapting ISO 9001 requirements to their needs, and IWA 2 has been developed to address these issues.

The guidelines contained in IWA 2:2007 do not add, change or otherwise modify the requirements of ISO 9001:2000, and are not intended for use in contracts for conformity assessment nor for certification.

Added value from IWA 2:2007

IWA 2:2007 adds value to a QMS based on ISO 9001:2000 for educational institutions in several ways.

IWA 2 was written by education experts for educational professionals. It uses terminology broadly accepted in the sector, including: educational organization, educational services, education provider, learner, education design, education delivery, assessment of learning, and more.

The eight quality management principles listed in ISO 9000:2005 are described using education sector language.

Four additional principles are suggested to sustain success in educational organizations:

- creating learner value;
- focusing on social value;
- agility;
- autonomy.

The requirement chapters of ISO 9001:2000 are amended using educational sector language:

- quality management system in the educational organization;
- management responsibility;
- resource management;
- realization;
- measurement, analysis and improvement.

Each corresponding chapter of IWA 2:2007 contains practical recommendations for its application in an educational organization.

IWA 2:2007 includes two practical annexes:

- Annex A is a self-assessment for educational organizations, with instructions for application, scoring and results interpretation.
- Annex B contains examples of most common educational processes, suggested measures for educational processes, educational organization records, frequent applicable tools for analysis, and improvement of the educational processes.

The first IWA 2 document was approved at a workshop held in Acapulco, Mexico, in October 2002; the current IWA 2:2007 (revision to IWA 2:2003) was approved at a workshop held in Busan, Republic of Korea, in November 2006.

The main changes were to make it a more friendly and useful document to people working in the education sector, as described above.

About the author

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E-mail: rafael-arrascaeta@webtelmex.net.mx
by Bruce Peoples, Chair of ISO/IEC JTC 1/SC 36,
Information technology for learning, education and training

Over the last 10 or so years, there has been a massive growth in the consumer market for IT: laptops, personal computers, personal data assistants, and various mobile devices. Consumers are spending their time – more than ever before – surfing the Internet, using online banking, sending e-mails, booking trips and buying products on the Internet.

In the domain of learning, education, and training, e-learning requires a wide variety of standards to effectively create, maintain, and dynamically adapt functional e-learning environments to meet individual user needs. With the advent of the 100 USD laptop developed by The Massachusetts Institute of Technology (MIT), the widespread use of distributed e-learning is rapidly becoming a reality.

The number of these inexpensive and powerful computers is increasing and deployment – especially to remote and underdeveloped educational infrastructure regions – are allowing educators to reach out to millions and soon hundreds of millions of learners. Advanced network capabilities of these inexpensive laptops will enable student users to experience e-learning in adaptive and collaborative environments on a global scale.

Standards for such areas as user preferences, competency models, accessibility needs, intelligent teaching agents, learning resource metadata, and privacy, are necessary for the creation and maintainability of adaptive e-learning environments. These, in turn, are needed for e-learning implementation.

Although there are several components involved in creating and maintaining adaptive e-learning environments, the overarching key in creating successful implementations in today’s and tomorrow’s marketplace, is the quality of the environment created and the quality of the content used.

In a growing learning, education and training marketplace, with a trillion USD invested annually, ensuring quality of these e-learning environments is of paramount importance to governments, industry, academia and more importantly users. A harmonized conception of quality is a prerequisite for properly functioning e-learning products and services.
Creating e-learning quality

With a membership of 31 national standards bodies and 20 liaison organizations, ISO/IEC Joint technical committee JTC 1, Information technology, subcommittee SC 36, Information technology for learning, education and training, develops standards for the components used in an adaptive e-learning environment. One of the current focuses of SC 36 is on quality with working group WG 5, Quality assurance and descriptive frameworks, spearheading this work by producing standards for quality.

These are the standards needed to ensure successful implementation of cost-effective adaptive e-learning environments. With Dr. Christian Stracke as its Convenor, WG 5 is producing ISO/IEC 19796, Information technology – Learning, education and training – Quality management, assurance and metrics, a four-part standard focusing on the definition and harmonization of the international conception of e-learning quality. The standard represents the harmonized international know-how on quality for e-learning.

ISO/IEC 19796-1 is intended to reduce the cost and complexity of adopting quality approaches and, at the same time, bring new or improved products and services to the market. This will have the effect of enhancing the level of innovation, diversity of supply and procurement intelligence in the learning, education and training markets.

Describing quality approaches

ISO/IEC 19796-1:2005, Information technology – Learning, education and training – Quality management, assurance and metrics – Part 1: General approach, provides a Reference Framework for the Description of Quality Approaches (RFDQ). It is a framework to describe, compare, and analyse quality management and quality assurance approaches. These approaches can be mapped to the RFDQ. The framework is not a quality management or quality assurance model – it is a framework for the description of quality approaches. The framework serves to compare different existing standards and to harmonize these standards and approaches towards a common quality model.

The standard consists of four sections and seven annexes defining:

- Section 1 – scope;
- Section 2 – terms and definitions needed for conceptualization of the framework and quality;
- Section 3 – the process model used;
- Section 4 – conformance to the standard.

For a better understanding of the standard, seven annexes show samples of its usage. An annex on Reference Quality Criteria (RQC) is also included, which serves to analyse and evaluate learning resources and scenarios. It is a framework to compare different quality assurance and quality assessment approaches (see Figure 1).

Harmonizing existing quality approaches

ISO/IEC 19796-2, Information technology – Learning, education and training – Quality management, assurance and metrics – Part 2: Quality model, is intended to harmonize the aspects of quality systems and their relations and to provide orientation for all stakeholders. It will not enforce any particular implementations, but instead, will focus on their intended results.

Based on the framework defined in part 1, ISO/IEC 19796-2 focuses on the development of a concurrent harmonized quality model developed as a quality standard for information and communication technologies – ICT-supported learning, education and training. This model will consist of basic requirements and recommendations for quality systems intended to be used in harmonizing existing quality approaches. It is also intended to be extensible for the requirements of specific e-learning environments based on user communities, contexts, and stakeholder’s needs.

“The widespread use of distributed e-learning is rapidly becoming a reality.”

The harmonized quality model for learning, education and training combines both process and product orientation and takes into account quality models existing in the current marketplace. The model will allow products and services to be analysed as an aggregate whole, taking production and the organizational contexts into consideration.
Managing and ensuring quality in different contexts

ISO/IEC 19796-3, Information technology – Learning, education and training – Quality management, assurance and metrics – Part 3: Reference methods and metrics, is intended to harmonize formats for describing methods and metrics for quality management and assurance. The standard will provide a collection of reference methods that can be used to manage and ensure quality in different contexts. This part will further provide a collection of reference metrics and indicators that can be used to measure quality in processes, products, components and services.

Part 3 also provides reference methods and metrics used in lifecycle processes with the reference models in ISO/IEC 19796-1, and ISO/IEC 19796-2. In addition, this standard provides collections of methods and metrics which are generically described and can be used for specific contexts. This set of methods and metrics can be used during the development and definition of an individual quality approach based on certain quality objectives.

Best practice guidelines

ISO/IEC 19796-4, Information technology – Learning, education and training – Quality management, assurance and metrics – Part 4: Best practice and implementation guide, provides a description format and a process framework for the description and development of quality approaches. The current framework is only the base for quality development. It does not provide support for the implementation and adaptation to the needs of an organization or within a specific context. WG 5 experts believe it necessary to provide guidelines to implement and adapt the framework and the reference methods and metrics in differing contexts.

“A harmonized conception of quality is a prerequisite for properly functioning e-learning products and services.”

The emerging Part 4 is intended to provide implementation guidance for ISO/IEC 19796-1. It will provide harmonized criteria for the identification of best practice, guidelines for the adaptation, implementation, and will contain a rich set of examples. In the current draft document, best practices examples currently include:

- Quality assurance guideline for e-learning service operation, from the ISO member for the Republic of Korea (KATS);
- Quality assurance elements for e-learning – Quality framework definition, from the ISO member for Japan (JISC);
- French code of practice in e-learning, from the ISO member for France (AFNOR Z 76-001);
- Learning, education and training focusing on e-Learning – Part X: Application scenarios and guidelines, from the ISO member for Germany (DIN PAS 1032-X).

It is envisioned that other examples will be added in the final document.

About the author

Bruce Peoples, a systems engineer at Raytheon, is Chair of ISO/IEC JTC 1/SC 36. He has over 17 years of experience in the integrated design, development and implementation of complex training, performance, decision, and production support systems. He currently leads research projects in the field of advanced intelligent multilingual systems. Mr. Peoples received a Bachelor of Science degree and a Master of Science degree from Clarion University of Pennsylvania in Communication Systems, specializing in Instructional Systems Design.
by Dr. Thomas Rau, Chair of ISO/TC 232, Learning services for non-formal education and training

Within the past few years, the topic of quality and quality assurance has gained momentum in many countries. Quite a number of international organizations like the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Organisation for Economic Co-operation and Development (OECD) have turned to quality assurance in the area of education in the context of their mandate.

The World Trade Organization (WTO) also considers education as a main area in international services in its General Agreement on Trade in Services (GATS). In connection to this, the necessity of transparency and comparable international standards has been stressed repeatedly. The European Union has intensified its engagement for quality in education. The enumeration could be continued for further international and regional organizations.

ISO takes on education

A turn towards education has also been witnessed within ISO. Until now, standardization activities were always embedded into the scope of the respective committees. This is why in February 2006 DIN, Deutsches Institut für Normung – the ISO member for Germany – applied for the establishment of a technical committee for education services. Following a surprisingly positive response from standardization organizations all over the world, ISO established technical committee ISO/TC 232, Educational services.

“Knowledge is becoming a key factor in successful corporate management all over the world.”

Now a technical committee is geared exclusively to education services, it puts the educational process and the assurance of education quality into the centre of its activities. The committee concentrates its attention on non-formal education for adults and has vocational education and training in its sights.

In March 2007, 34 experts from Europe, the USA, Asia and Australia met for the first meeting of ISO/TC 232 in Berlin, Germany. In the course of the meeting, the committee renamed itself to Learning services for non-formal education and training in order to better meet the differences in conceptuality within the various countries, and also to better respond to requirements of life-long learning.

Need for non-formal education standards

A new economic activity is created by the provision of for-profit educational services. These economic opportunities and benefits are testimony to the growing economic importance of education in the global knowledge society. Knowledge is becoming a key factor in successful corporate management all over the world. Education is increasingly being regarded as a business-oriented service. Quality assurance is a crucial issue in non-formal educational services.
A number of factors determine the quality of continuing education and training:

- the extent to which it builds on knowledge an employee already possesses;
- the degree to which it is geared to his/her field of activity;
- the degree to which it is tailored to company needs and practice;
- the successful transfer of the acquired knowledge or skills to the place of work.

Thus, quality assurance requires maximum cooperation between educational establishments and companies or students. Standards ensure this interaction.

"Education is increasingly being regarded as a business-oriented service."

It is becoming more and more apparent that quality needs to be standardized in the field of education, as measurable results and educational structures can optimize learning progress, increase transparency in the education market and make it easier to choose between competitors. The availability of quality standards is crucial if quality assurance is to be translated into systematic quality development.

The importance of the proposed standardization results from the positive impact quality standards have on the communication of knowledge, skills and competence on the one side, and the advancement of knowledge as a key to successful corporate management, on the other.

Against the backdrop of the increasing need to get recognition of foreign or private qualifications, quite a lot of non-formal education standards have been developed in different countries during the past years. The quality systems have different approaches and are not at all comparable. System pluralism and external certification have been established permanently. An in calculable number of standards have arisen in Europe alone in individual countries. For users of education services, it is almost impossible to compare effectively.

There is a high risk of non-trustworthy certification systems, which can provide misleading approval to education providers, learners, employers and the public. The increasing risk to obtain low-quality credentials in the long run may affect the confidence in certifications and in the quality of professional labour as such.

As more and more suppliers use quality assurance systems, ISO will have a key role to play by providing International Standards which are transparent and make possible comparisons among the different certifications.

What is the new technical committee setting out to achieve?

The purpose of the committee is to create a suitable framework for preparing standards in the field of learning services for non-formal educational and training. It is also open to standards proposals relating to other areas of education that share the common concern of encouraging cooperation in quality.
assurance, whereby particular emphasis is placed on the exchange of models and methods and the establishment of common criteria and principles. Core elements are ensuring the quality and effectiveness of education or training and improvement of knowledge transfer, whilst also enhancing the transparency and comparability of the range of educational services provided.

Vocational training aims to improve competitiveness, and, as such, must be customized to meet company needs. This involves directing measures towards the requirements of the company whilst also considering the needs and capabilities of the individual. The collation of standardized data on the status of skills and requirements plays an important role in ensuring that education, training and quality assurance are tailor-made. After all, the quality of education or training providers determines whether, and to what extent, they will enjoy market success.

“*The availability of quality standards is crucial if quality assurance is to be translated into systematic quality development.*”

In line with corporate requirements and beyond, consideration of learning needs at the individual level requires greater quality control in order to support and safeguard the life-long learning process.

The standardization project will cover the following:

− Results of the training or educational measures;
− Monitoring (internal testing of individuals and companies providing educational services, quality testing by external parties);
− Curriculum requirements (methodological teaching concept);
− Requirements relating to teachers and instructors;
− Standards for quality testing;
− Classification of quality levels in specific knowledge areas (e.g. for language certificates);
− Knowledge acquisition and communication methods and techniques;
− Tools for accessing stored information;
− Methods, tools and criteria by which to measure customer satisfaction (i.e. individuals receiving education or training and companies);
− Tools, methods and criteria for monitoring of training or education.

What will be the first standard?

The technical committee’s first standard is being developed by working group WG 1, *Learning services providers*. This future standard, entitled *Learning services for non-formal education and training – Basic requirements for service providers*, will be generic and suitable as a basis for further sector-specific standards.

The draft under discussion in the working group is a reference model for quality management in business-oriented education companies. It is intended to develop a very flexible and transparent standard with increasing requirements concerning quality management systems. In its basic approach, the model supports the current trend towards non-formal education packages that are geared as precisely as possible to customer needs.

In addition to WG 1, an ad hoc group was established to carry out market research, as well as to research existing standards and internationally agreed documents within the scope of ISO/TC 232. This will help identify further needs for International Standards.

Where will the proposed standard make a difference?

The features of the draft model

− incorporates market and customer requirements which are typical for the respective industries;
− follows a process orientation approach;
− uses principles of excellence in accordance with international comparison criteria;
− focuses on internal mechanism of quality assurance and self-assessment capability;
− provides possibility of inspection, certification, and monitoring by independent inspection bodies.

The future ISO standard for education services will benefit all concerned: students, companies using their chosen education package for internal qualifying courses, and, of course, the education providers themselves. It will take account of the following aspects: the overall methodological conception of education courses; the requirements to be met by teaching staff; methods and techniques of acquiring and conveying knowledge; and methods of measuring customer satisfaction.

Subsequent sessions of ISO/TC 232 will continue to discuss joint quality criteria and principles. Publication of the new ISO standard is expected in 2010.
Standards as databases and the development of knowledge

by Reinhard Weissinger,
Group Manager, Project Management and e-Services,
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Over the last few years, the use of databases to store structured content from published ISO standards or ISO standards under development has significantly increased. More and more ISO committees use databases to store “structured items”, which lend themselves to being managed with the help of databases. Examples of such structured items are:

• terms and definitions;
• graphical symbols;
• codes of all types;
• data dictionaries;
• product properties;
• elements of classification systems, etc.

In recognition of these developments, the ISO Technical Management Board (TMB) has established a special group to investigate these activities and to propose measures to prepare ISO to meet this new challenge. The group currently comprises representatives of 14 ISO committees from various technical fields as well as representatives from several member bodies.

A recent result of the work of the group was the procedure for the development and maintenance of standards in database format, which has been approved by the TMB and has become Annex ST to the ISO Supplement to the ISO/IEC Directives. The procedure, which is available at www.iso.org/directives, supports the four main processes of the development and maintenance of standards, i.e.

• the development of new standards;
• the maintenance of existing standards;
• the withdrawal of elements from standards;
• the systematic review of standards.

ISO is currently working towards providing an environment, called the ISO Concept Database, supporting this procedure, which will facilitate collecting, storing and retrieving concept-oriented items from standards. The main function of the concept database will be to provide accessibility to items that have been standardized, as well as to provide an environment for ISO committees to develop and maintain items for which they are responsible. The effort to bring together content from the different ISO committees is designed to facilitate cross-standard and cross-committee visibility and harmonization.

This article addresses some of developments in this new field, and tries to place them into the broader context of standards development as a form of knowledge generation and consolidation. It then addresses some potential future scenarios which may evolve from these developments.

Standards development as a process of generation and consolidation of knowledge

All standards organizations have procedural rules for the development of standards, for the participation of stakeholders, for prescribed time frames for the development of standards and for the structure and layout of the standards. From a more generic point of view, standards development can be seen as a process of negotiation amongst stakeholders about the codification of knowledge.

In this process knowledge may be created, its viability may be tested and verified and existing or potential knowledge alternatives may be discarded (variety reduction) in favour of others.
This process results in a consolidation of knowledge. Due to the wide participation and the extensive review processes in an organization like ISO, the resulting body of knowledge should normally be considered to be of high quality, capable of providing the basis for reliable use and application.

The diagram above shows a simple three-layered model of knowledge creation. The vertical arrow indicates a dynamic progression from yet unstable knowledge through a process of consolidation to stabilized and codified knowledge, whereas the horizontal arrow refers to a dynamic evolution from location- and condition-specific knowledge, through a process of generalization, towards globally applicable knowledge.

Although it is evident that not all processes of knowledge consolidation pass through formal standardization, standardization can be considered as one of the most prototypical forms of knowledge generation and of consolidation of results which become part of a globally shared knowledge pool.

### Concepts, knowledge and learning

Concepts are fundamental for all higher cognitive processes. They are the means of organizing our experience and allow us to apply our existing knowledge to new situations. “This [process] entails categorization, because if we were unable to impose categories on the perceptual world, then every percept, object, or event that occurred would be processed as if it were unique.” (Goswami, 1998, p. 25)

“Concepts are fundamental for all higher cognitive processes.”

### Forms of concept representation

As shown in the diagram below, concepts can be represented in different forms. One and the same concept may even be designated by different forms of representations (e.g. by using a term as well as a symbol).

Each representation is accompanied by additional elements, such as an
entry number, a definition, examples, notes, a description of the specific function, of the image content of a symbol and possibly other elements (see e.g. ISO 22727:2007, which defines requirements for public information symbols).

Possible future scenarios

Standards development and standards documents

It is likely that the database-centred approach for the development and maintenance of standardized content will become much more common in the future. It is also likely that, supported by the new procedure, currently separate approaches to the development of concepts applied in different communities (e.g. terminology, graphical symbols) may further converge. The visibility of content from different standards and standards under development in the same database will very likely contribute to stronger harmonization and further consistency.

There may be an impact on the structure of standards: The existence of a standard in the form of a paper or electronic document could become only one form – amongst others – of rendering standardized content.

Flexible assembly of products and new services

Together with parallel developments in the field of standards authoring such as the increasing use of XML, it is possible to foresee new types of services whereby standardized content is assembled from a set of source standards and provided as a combination of relevant components from standards. References to the full texts of the source documents could be included. The customized product obtained by the customer would then only contain relevant elements from standards with the possibility of retrieving the full content of the standards, whenever needed.

Products provided to customers could be updated more frequently by incorporation of new or revised content maintained in databases. On the basis of sophisticated release and version management systems, it would also be possible to re-generate and reference earlier versions (e.g. in response to contractual and legal demands).

Other services could include the provision of standardized content for computer access with a much higher degree of granularity than available today. Customers may have many more options in defining the package of standardized content they wish to obtain in order to best fit their needs.

Emergence of a global knowledge infrastructure

Some observers predict the emergence of worldwide structures of mass collaboration based on highly segmented value-chains which span far beyond the borders of individual companies and institutions. Knowledge resources and expertise from inside of firms will be utilized and combined with many resources from outside on a global scale (Tapscott et. al., p. 240).

In such an environment, standardized concepts in their different representations, including in different languages, may function as key components of a global knowledge infrastructure through which existing and newly developed knowledge resources can be referenced, classified, inter-related and retrieved as part of a new global infrastructure of meaning (Weinberger, p. 222).

Conclusions

The review of the ongoing developments and their potential for the future has shown that standardized concepts may perform a foundational role in the emergence, structuring and operation of a global knowledge infrastructure. With its coverage of a multitude of technical and other subject fields, its wide range of stakeholders and open processes, ISO – through its national members and together with its international partners – is in a position to make a key contribution to the evolution of such a widely shared knowledge infrastructure.

“It is likely that the database-centred approach for the development and maintenance of standardized content will become much more common in the future.”

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ISO e-learning completed!
- A convenient, practical and fun way to become a standardization expert

by Dr. Daniele Gerundino, Strategic Adviser to the ISO Secretary-General

The pipeline fiasco was one of the greatest blunders yet to happen in the 21st century (see Box overleaf for full story). The National Steel Corporation (Steelcorp) of Southistan was among the losers. Its offer to supply line pipe for the Baharistan portion, which represents nearly 70% of the total pipeline’s length, was rejected by Nova Oil Co because its materials conformed to the Southistan’s Bureau of Standards (SBS) standards rather than to International Standards.

In the end, Steelcorp had to be content with supplying line pipe for the shorter Southistan portion, implemented under the responsibility and technical supervision of the Southistan’s National Petroleum Corporation (NAPETCORP). The top management of Steelcorp is now convinced that all necessary measures must be taken to ensure that Southistan’s industry does not lose such a lucrative deal again.

Standards have a significant impact on business

Steelcorp believes that they have the technical capability to produce line pipe conforming to any standard. They are prepared to remodel their production facilities to comply to the standards required by their customers. Negotiations for the second phase of the pipeline project are due to start in a few weeks. This phase will double the capacity of the pipeline and extend it to Southistan’s eastern neighbour – Sharqistan. The investment to remodel therefore constitutes a realistic and worthwhile plan with achievable goals.

Following this decision, Mr. Kadir, from Steelcorp, addressed the technical director of SBS with the following request:

“…We have lately been studying all published and draft International Standards for line pipe, and have learned thanks to SBS membership of ISO technical committee ISO/TC 67 that ISO 3183, Petroleum and natural gas industries – Steel pipe for pipeline transportation systems, is currently in the final draft International Standard stage. This means that the new International Standard will be published in a few months time, and we believe that this is the right moment to adopt it as an SBS standard and implement it in our national industry.

“We expect that adopting this International Standard and implementing it by our company would make it clear to
The pipeline fiasco –
Excerpt from the SOUTHISTAN TIMES

"...Specialists in the industry call it the greatest blunder of the first decade of the 21st century. Some shake their heads in despair, while others just shrug it off as one more consequence of the inefficiency of a state-run corporation. Most agree that had this huge pipeline project been planned correctly, up to 400 million Southistan Sulis would have been saved by the country.

The facts of the case are well known. Most of our readers have followed the development of the SS 6-billion pipeline planned to transport crude oil and refined products from the offshore sites and oil production fields of the Southern Province to the Northern Province and across the Bijani Mountain range into the densely populated industrial heartland of Baharistan. People followed the disputes and wrangling over costs and specifications and were dismayed to hear that negotiations were time and again broken off due to disagreement about unified standards for the whole pipeline which representatives of each side wanted to fashion to their own liking.

After intervention by the Governments of the two countries, the negotiations were resumed only to reach a half-hearted agreement: to build the pipeline in Southistan according to the standards of our National Petroleum Corporation and in Baharistan according to the standards set by the Nova Oil Corporation which was commissioned by the Government of Baharistan to build their part of the pipeline..."

"...A Parliamentary Commission of Enquiry was set up which ordered a post-commissioning audit of the pipeline project. Some of the conclusions of that audit:

- the project team and the contractor responsible for the whole pipeline project had to make two pipeline designs with significant extra design and project engineering costs;
- it was not possible to place one large order and gain price leverage for the line pipe, which is one of the largest costs of the pipeline project;
- there were problems with the pipeline welding and inspection, since both parts of the line had different material and personnel qualification requirements;
- it was evident that on a per kilometre basis the Southistan part of the Pipeline was significantly more expensive due primarily to greater wall thickness of the pipes..."

"...Now that negotiations for phase 2 of the pipeline project are set to start soon, sources from the Ministry of Energy and Mines say the Minister is determined that no repeat of the embarrassing mistakes of phase 1 should take place this time. But can the Minister put real pressure on those responsible for the technical decisions in the all-powerful National Petroleum Corporation...? "

Sensitive standards implementation issues

In response to Steelcorp’s proposal, SBS/TC 24 (the competent SBS committee) held a meeting to discuss, among other topics, the possibility of adopting ISO 3183 and participating in the revision of ISO 13623:2000, Petroleum and natural gas industries – Pipeline transportation systems. The proposal to adopt ISO 3183 as a national standard, received firm opposition from the representative of NAPETCORP. The main reason given was that ISO 3183 might differ substantially from the current SBS standard (SBS 5634), on which numerous processes and procedures of NAPETCORP are based.

Although the NAPETCORP representative insisted that they were not opposed in principle to the adoption of ISO 3183, he emphasized that more time was needed to review company procedures referencing the current national standard. Only once the consequences of adopting the new International Standard were identified could the process of change begin. This view was supported by the representative of the Ministry on Energy and Mines, who also wanted to adopt the ISO standard as a matter of principle, but saw no need to speed up the process.

After a long discussion, some members who had participated in the elaboration of SBS 5634 expressed doubts that ISO 3183 could offer a better solution. The committee therefore established an ad hoc group to study the technical differences between the two standards and report back its findings to SBS/TC 24. The SBS technical director was then requested to provide advice on how to resolve the issue, given its sen-

local and foreign customers alike that our product conforms to world class standards. This would enable our company to bid competitively for the supply of line pipe in our region and beyond. By copy of this e-mail to my good friend, Mr. A Lim, Chair of SBS/TC 24, Petroleum, natural gas and petroleum products, I am requesting SBS to include in its programme of work the adoption of ISO 3183 and to process this adoption through a fast track method..."
sitivity and the apparent clash between the two key Southistan stakeholders: NAPETCORP and Steelcorp.

What is this all about?

Does Southistan, SBS, Steelcorp or the pipeline fiasco not sound familiar? Do not worry! You would only know about Southistan and the various developments taking place in that country if you had participated in one of ISO’s e-learning sessions.

In past issues of ISO Focus\(^1\), we announced that in order to develop the competencies needed to support national participation in international standardization, the ISO Central Secretariat (ISO/CS), with the support of two sponsoring members – the German ISO member (DIN) and the Japanese ISO member (JISC) – had undertaken the development of a comprehensive e-learning programme. The programme targets the role of “Expert in International Standardization Management”, and addresses the training needs of staff members within national standards bodies – primarily technical officers who already have a background in national standardization.

Through careful examination of case materials and using supporting documents and guidance from a course mentor, the students’ task consists in analyzing the issue, summarizing key points, and providing draft recommendations to the technical director and to the committee chair with, hopefully, a positive solution to the problem.

The story of the Southistan’s pipeline is one of the practical cases proposed to e-learning students in the framework of ISO’s e-learning Module 3 “Implementing International Standards”. This last module of ISO’s e-learning programme was released end of 2006 and tested in 2007.

The feedback received so far continues to be very positive.”

The development of the ISO e-learning programme “Expert in International Standardization Management” is therefore complete, and the three modules are now available to ISO members. This implies the possibility of participating in the training sessions organized throughout year by ISO/CS\(^2\), but also to use the programme’s content materials.

The three modules comprise altogether over 100 content elements, including informative documents, guides, PowerPoint presentations, templates and software tools – without counting the hyperlinks to information sources on the Web. These materials are a) fully harmonized, i.e. share common design principles and content classification, as well as look and feel, and b) can be re-used in a variety of contexts, such as classroom courses, new customized e-learning modules and information services.

All modules are facilitated online. Students work on their assignments, send questions and completed projects to their mentor via the Web. Mentors review their students’ work and provide feedback online, until the final deliverable is submitted. At the end of each task, the mentor opens a discussion forum and uses this opportunity to “normalize” the deliverables produced by the various students prior to starting a new task.


2) Reference to the CL concerning ISO training.
First steps on standardization (Modules 1 & 2)

1 - Planning a standardization strategy

Module 1 deals with planning – i.e. with all the activities that an expert should be able to undertake to effectively allow his/her country to benefit fully from international standardization including:

- analyzing and defining fields of national interest;
- evaluating strategic alternatives (such as adoption of published International Standards or participation in the standards development process);
- assessing potential stakeholders’ participation; and
- estimating resources needed to support the process.

2 - Participation in international standardization

Once a national standards institute has defined fields of interest and selected priority items for standardization, Module 2 addresses their participation in the development of International Standards.

The second ISO e-learning module offers a comprehensive didactical environment to help experts in international standardization management: organize and support the participation of national interests in the process of international standardization (as participant members), and ensure correct and timely application of the ISO/IEC directives.

The module provides an environment where learners can concretely apply procedures for standards development work, practice with tools supporting the process (e.g. project and document management systems), and deal with consensus-building and the promotion of national positions on specific content issues (taken from actual ISO standards projects).

New! Module on implementing International Standards

The third ISO e-learning module covers the last key aspects of international standardization: adoption and implementation of International Standards at the national level.

Experts in international standardization management should be capable of:

- providing support and advice on the application of correct procedures (notably based on ISO Guide 21) for the national adoption of International Standards;
- developing information and guidance to promote the role and benefits of International Standards for the country’s stakeholders (in general terms and from a sectoral perspective);
- offering clarification and assistance on issues and difficulties related to the use of International Standards.

The third module, as the previous ones, is based on the principle of learning by doing. It follows the common instructional design model, and shares with the other modules, a variety of contextual information and content elements. The stories presented in module 3 take place in the same fictitious country, Southistan, with its national standards body (Southistan Bureau of Standards).

The module provides an environment where the learner has to:

- apply the procedures for national adoption of standards in a number of concrete cases;
- develop information and training materials highlighting the benefits of standardization in selected sectors (the oil and gas and earth moving machine sectors are taken as example);
- provide assistance on problems related to the use of specific ISO standards – such as the one outlined at the beginning of the article, regarding ISO 3183, Steel pipe for pipeline transportation systems; and
- plan/organize activities to evaluate the spread and use of nationally adopted standards.

Module 3 helps professionals to strengthen their abilities to:

- ensure the correct application of ISO Guide 21, providing direct coordination of the process for national adoption of ISO standards, and support to technical groups and national standardization bodies (NSB) units responsible for the process;
- highlight the benefits of standardization and prepare communication materials (such as PowerPoint presentations) on the subject;
- provide support on the implementation of nationally adopted (or soon to be adopted) ISO standards, helping users to address and resolve misunderstandings or problems related to the application of such standards (e.g. existing or perceived conflicts with national regulations, possible overlaps with existing national standards, different views/interpretations of the application standards by different stakeholders);
- develop training programmes to promote awareness and better understanding of national standards by specific stakeholder groups;
- introduce a structured approach to evaluating/monitoring the adoption and use of national standards, e.g. by making use of stakeholder surveys and similar tools.

The student will adopt the role of a technical officer of Southistan with several years of experience. He will then be asked by his supervisor (the SBS technical director) to address a number of issues covering the subject matters outlined above, with a view to provide satisfactory deliverables and contribute to the modernization of the Institute in these areas of activity (see Box opposite for content structure).

Nurturing growth with new talent

The ISO e-learning programme designed to address the top priority areas indicated by Council a few years ago is completed. ISO members can take advantage of its modules and content materials. ISO/CS is now organizing various sessions per year, with the capacity to
train a significant audience of professionals from national standards bodies (several dozen per year).

It is interesting to note that the ISO/CS project team has been closely following the learners’ performance to identify outstanding professionals that, once their experience is completed, could be associated with the programme. We believe that this process is important to expand the knowledge network and nurture the growth of widespread professional skills in our community.

It is with particular pleasure that I have seen the first positive steps of this process. In 2007, we welcomed as a new mentor Ms. Natalia Drault from IRAM – the ISO member for Argentina – a former student and excellent performer of ISO’s e-learning. We are keen to select and involve new professionals in the months to come. Incidentally, another exceptional feature of e-learning is that our mentors can conveniently operate from any country, and collaborate with the core ISO/CS project team in Geneva.

**New and wider horizons**

The feedback received so far continues to be very positive – including that from sponsors of the project, participants of the course and their managers, ISO officers and Council and Technical Management Board members who also had the opportunity to follow the project.

However, there still is much more to be done. For example, we plan to reuse many of the materials that we have developed so far, to provide new and complementary Web-based information services targeting other user groups.

**About the author**

Dr. Daniele Gerundino is Strategic Adviser to the ISO Secretary-General at ISO Central Secretariat.

Other ISO members can also follow on this initiative.

Last but not least, we are considering new projects to target other relevant groups, notably students from higher education and experts participating in ISO’s technical work. But that is another story…

**So how do we apply these standards? (Module 3)**

Module 3 lasts about 12 weeks, with students supposed to work approximately one hour per day. Learners play the role of technical officers, with assignments due to their chief, SBS’ technical director, Dr. Samina Khan. The module is divided into five main tasks covering the following topics:

- **Task 1**: Ensuring compliance with ISO Guide 21
  - **Sub-task 1.1**: Making recommendations on standards adoptions
  - **Sub-task 1.2**: Responding to stakeholder feedback
  - **Sub-task 1.3**: Providing publication advice
- **Task 2**: Preparing a PR presentation
- **Task 3**: Responding to requests from stakeholders
  - **Sub-task 3.1**: Responding to Mr. Karim, Director of Heavy Industries and Trading (Business case covering the Earth moving machinery sector)
  - **Sub-task 3.2**: Responding to Mr. Kadir, CEO of National Steel Corp. (Business case covering the Oil and Gas sector)
  - **Sub-task 3.3**: Responding to Mr. Habibi, Technical Director of Habibi Valves (Business case covering the Oil and Gas sector)
- **Task 4**: Outlining a training programme
- **Task 5**: Developing a stakeholder survey

**Special thanks**

As a final note on module 3, I wish to extend ISO Central Secretariat’s and my personal thanks to DIN and JISC - sponsors of the ISO e-learning programme - and to the ISO veterans who provided their invaluable input and support to the development of key business cases within the module: Neil Reeve (President of IFAN, member of ISO/TC 67 Management Committee and a clearly recognized ISO intellectual leader in the oil and gas field), Roberto Paoluzzi (Chair of ISO/TC 127/SC 4, another recognized ISO intellectual leader in the earth moving machinery field) and Anwar El Tawil, former Director of the ISO/CS Developing Countries unit. I wish also to thank Keyth Moyes from British Standards Institute, for providing an excellent presentation summarizing the DTI-BSI study on economic benefits of standardization.
Some 410 delegates from 125 countries attended the 30th ISO General Assembly from 19 to 21 September 2007, held in Geneva, Switzerland. In addition to delegates from ISO member countries, the General Assembly was attended by high-level officials from the United Nations organizations, Swiss authorities and interested stakeholders to take stock of ISO’s Strategic Plan to ensure the viability, strategic positioning and success of the Organization for the years ahead.

As a “hub” for international cooperation and action for sustainable development, the gathering in Geneva proved useful not only to review the complete range of activities of the organization but also for delegates to interact among themselves, and take the pulse of the Organization.

From left: Mr. Alan Bryden, ISO Secretary-General; Mr. Håkan Murby, ISO President; Ms. Anne Mahrer, President of the Parliament of the Canton of Geneva; Ambassador Mr. Christian Etter, Representative of the Swiss Federal Council.

Officially opening the event, ISO President Mr. Håkan Murby compared ISO’s beginnings 60 years ago with less than 30 members to its record proportions today. “The increase in the size of ISO’s worldwide family is really impressive,” he said. “We now have members from 157 countries, thus covering some 97% of the world’s population, representing 98% of the world’s Gross National Income.”

International Standards have shaped our world over the past 60 years, but our understanding and practice of standardization have also been shaped by 60 years of experience, he said, adding that, in the beginning, ISO standards were...
used by traditional business sectors and “are now also valued for addressing the quality, safety, environmental and health aspects of products and processes.”

“Today we have projects as varied as social responsibility, financial services, hydrogen technologies and nanotechnologies. The areas of management systems and that of services are taking an increasing place in our portfolio,” referring to the expanding scope of ISO’s International Standards in response to the challenges of the 21st century.

He also underlined ISO’s contribution with over 16,500 published standards, of which 1388 were published in 2006, more than 100 standards produced per month. An all-time record!

“As we face the economic, social and environmental challenges of an increasingly global world, the urgency of addressing climate change, sustainable energy and security, and of dealing with finite natural resources, giant emerging economies and rapidly evolving technologies, ISO standardization is there to develop and provide a toolbox of widely recognized global solutions.”

President Murby concluded by paying tribute to the men and women who, over the years, have been engaged in standardization and have shaped the ISO system as it is today – including a large network of ISO members and more than 680 organizations in cooperation with ISO.

The ISO system – foundation of a sustainable world

When introducing his report to the General Assembly, ISO Secretary-General Mr. Alan Bryden highlighted the major developments on the world scene between the General Assemblies in Ottawa in 2006 and in Geneva in 2007, where the imperative and modalities of sustainable development have been addressed by world leaders.

“In all these meetings, the need for International Standards was highlighted as major tools to transform political will and international commitment into concrete actions by all stakeholders for the dissemination of new technologies, as well as good practices for business and public governance.”

Mr. Bryden focused on four aspects of ISO’s recent achievements:

- assisting members to make the best of their membership in ISO, so that they, in turn, can better serve their national stakeholders;
- consolidating and expanding ISO’s international network;
- addressing and promoting ISO’s broadening scope and the increasing production of International Standards;
- modernizing and securing the foundations of the ISO system.

When underlining the actions taken to better assist ISO members, Mr. Bryden listed numerous examples, among them the publication of an ISO/IEC information document Using and referencing ISO and IEC standards for technical regulations, and the training and assistance programmes developed to facilitate the use of the IT tools supporting the ISO system and the development of a specific document distribution service.

“As a priority, we develop actions and tools to assist ISO members in playing their role efficiently as the gateway to international standardization for their national stakeholders.”

In terms of expanding the international network, Mr. Bryden highlighted ISO’s cooperation with the UN and related agencies, as well with IEC, ITU, WTO, and the 680 other organizations in cooperation with the Organization. He also described relations with international groupings and meetings of stakeholders, including the World Economic Forum, the OECD Forum, the annual meeting of the American Society for Quality, the UN Global Compact Leaders Summit and the World Energy Congress.

It is important that our members liaise with the national members or interfaces of these international partners, as this will at the same time contribute to enhancing their national stature and facilitate collaboration at the international level,” he said, adding that the new database of organizations in cooperation with ISO should facilitate this networking.

Mr. Bryden went on to draw attention to ISO’s broadening scope and increasing production, which in 2006 set an all-time production high of ISO standards and other deliverables. This, he said, is due to the increased interest in fields already covered and in the emergence of new work areas, and to the reduction of processing times (34 months for an ISO deliverable).

The ISO Secretary-General concluded by paying tribute to the role of the ISO Central Secretariat: “With the management team, the ISO/CS staff is determined to bring their contribution to consolidating the ISO system as the world leader for the development of globally relevant International Standards, thus serving the ISO membership, their stakeholders and contributing positively to society at large.”

Mr. Alan Bryden.
Cooperation among equal partners

Dr. Renzo Tani, IEC President, spoke of the value of continuing good cooperation between ISO and IEC which, he said, benefits both Organizations.

He gave an overview of the numerous achievements at various levels, starting with the World Standards Cooperation (WSC) – the coordination entity between IEC, ISO and ITU. “The way that the WSC operates is a leading example of how cooperation among equal partners should proceed.”

Commitment to the global standards process

Mr. Malcolm Johnson, Director of ITU-T (International Telecommunication Union’s standardization sector), mentioned the joint efforts by the WSC. “Cooperation and collaboration is the key to avoiding duplication of effort, and sharing resources.”

He gave as an example the most significant accomplishment of commitment to cooperation – WSC’s alignment of the Intel-Motor Show that was so successful will be held again at next year’s show.

“ISO, IEC and ITU have enjoyed a good relationship for many years, and ITU is committed to continue and develop this relationship,” said Mr. Johnson. “I would like to take this opportunity to thank ISO and its members for its commitment to the global standards process and its willingness to collaborate with us to meet the needs of the global community.”

Compliance with International Standards

World Trade Organization (WTO) representative Mr. Patrick Rata, Counsellor, Trade and Environment Division, praised the “frequent and fruitful” cooperation with ISO at the working level, and the mutual support given to events organized by the two Organizations.

In addition, the IEC President underlined the highly effective cooperation between the central offices, not only at policy level but also on a day-to-day basis between staff dealing with more operational matters. He cited the World Energy Congress in November 2007 and the Joint Marketing and Communication Forum in 2006 as two recent examples demonstrating this good collaboration.

“It remains to be seen for what other areas we might envision a joint event or joint presence. The main point is, when we set our minds to it and work in a consultative and well-coordinated manner, we can cooperate in a way that benefits both of our organizations.”

Dr. Tani concluded: “Collectively, we believe in maintaining good relations with ISO and in cooperating with you whenever that is the best way of serving our markets and our memberships.”

Mr. Malcolm Johnson

Mr. Patrick Rata

Mr. Malcolm Johnson

He underlined how the WTO Agreement on Technical Barriers to Trade (TBT) explicitly encourages Members both to use relevant international standards and to participate in the work of international standardizing bodies, adding that “in a general sense, compliance with an international standard is recognized as meaning the country respects its WTO obligations and trade barriers are not created.”

Mr. Rata highlighted the TBT Committee’s work on the fourth Triennial Review of the TBT Agreement, which welcomed “ISO’s engagement and
ISO’s cooperation with the UN and related agencies was highlighted by several speakers at ISO’s General Assembly. Ms. Ziva Patir, ISO Vice-President (technical management), reviewed the developments in ISO’s technical work and the busy year between the General Assembly in Ottawa in 2006 and the one in Geneva in 2007. She highlighted the mechanisms put in place for investigating new areas of standardization and the creation of project committees in those cases where there is a new work item but no existing technical committee whose scope covers it.

She also outlined the numerous successes undertaken by the Technical Management Board (TMB), including the publication of the new ISO/IEC information document Using and referencing ISO and IEC standards for technical regulations, the simplification of deliverables, the joint ISO, IEC and ITU common patent policy and the change made to the systematic review of ISO standards.

Ms. Patir reviewed the programme underway to deal with the multiplication of thematic management system standards (MSS), including the formation of a Strategic Advisory Group and the ISO/IEC Joint Technical Coordination Group, and a Guide soon-to-be published on their integrated use.
Ensuring that ISO standards support sustainable development, Ms. Patir pointed out the TMB’s consideration of a Strategic Advisory Group on Sustainability and of a survey underway to understand the effects of standards on sustainable development.

“One of the major challenges for the future,” she said, “is how we take these survey results and translate them into an action plan, so that we, at ISO, make our small but significant contribution to a sustainable world.”

Strategies – Present and future

Dr. George Arnold, ISO Vice-President (policy), recalled the seven key objectives of the ISO Strategic Plan 2005-2010 and how they drive ISO’s annual business and operational planning process.

He focused on the various initiatives in 2007: the creation of the ISO Council Task Force on energy; the development of an online compendium of existing economic studies conducted; the activities related to International Standards and public policies; and the initiatives to enhance the participation of stakeholders in ISO’s work, including the policy for organizations in liaison and the action plan to promote the involvement of consumers’ interests in standardization.

In highlighting actions devolving upon ISO members, Dr. Arnold indicated that the real power behind the ISO system are its members – contributing to the consistent and effective implementation of the Strategic Plan – and gave examples of how members can take action at the national level to contribute to its progress.

“Within your country, it is up to you to communicate and disseminate information about ISO and its activities and work to get stakeholders engaged, including government officials, consumers, as well as industry,” said the ISO Vice-President.

Dr. Arnold concluded by reflecting on progress mid-way into the implementation of the Strategic Plan: “We have made a lot of progress, and it is very clear that our strategic objectives have provided a solid foundation for the future and is reflected in ISO’s outstanding, measurable performance over the last several years. It is also very clear that we have a lot of work ahead of us to extend and solidify the progress we have made.”

Sustainably positive

“ISO is in a sound financial situation,” said Mr. Antoine Fatio, ISO Treasurer, when underlining the Organization’s good economic and technical performance.

“This has not happened by chance,” he said. “These results happened from the combination of the increase of membership, the high level of production of standards, the efficient promotion of the ISO system and, of course, good and lean management.”

The Treasurer added that the positive financial results have assisted in enabling the grouping of ISO Central Secretariat operations in new and modern premises without drawing from the General Fund. On the contrary, said Mr. Fatio, this fund has been refurbished. The Treasurer reported that the grouping of operations in the new premises will have a major impact on the overall performance of the organization.

“I would like to underline how much I have enjoyed being your Treasurer, as my term coincided with a period of recovery,” concluded Mr. Fatio.

ISO Principal Officers

From left: Mr. Alan Bryden, ISO Secretary-General; Ms. Ziva Patir, ISO Vice-President (technical management); Mr. Håkan Murby, ISO President; Dr. George Arnold, ISO Vice-President (policy); Mr. Antoine Fatio, ISO Treasurer.
A National Standards Body of the 21st century

Can and should standardization become part of the business strategy? How to ensure the return on investment of resources allocated to standardization? Is the system of national representation still viable and sustainable? What can the formal standardization system learn from other ways of developing standards? Could the standardization system benefit from being more standardized in its operation?

These are among the questions addressed by Mr. Jacques Schraven, Chairman of the ISO member for the Netherlands, NEN, who looked at the challenges to standardization and national standards bodies in the 21st century.

“Let’s break the taboos of standardization,” stated Mr. Schraven. “Standardization organizations close their eyes, for the truth is an inconvenient truth. The truth of losing market share to informal standardization. The truth of serving standards users with costly products and through fragmented distribution channels. Acknowledging the truth is already half the solution.”

Turning to the first taboo, standardization is double Dutch for too many, Mr. Schraven said that standardization is not a word used in the boardroom since the language used is about market shares, business alliances, competitive edge and innovation. However, it is just a matter of wording: standardization is in fact part of business strategy.

The NEN Chairman broke the taboo by reaffirming that standardization is business strategy—the most sophisticated competition tool with the capability to set the rules of the game, to stimulate cooperation, to establish common interfaces, and to measure success.

His presentation provided food for thought and should pave the way for further challenging discussions.

A new energy paradigm

ISO is already very active in the energy efficiency and renewable sources fields, having published 123 existing standards and 45 active work items underway,” said Dr. George Arnold, ISO Vice-President (policy), who reviewed the portfolio analysis undertaken by the ISO Council Strategic Task Force on energy for which he served as Chair.

The Task Force examined the landscape and made recommendations, subsequently approved by Council, for ways in which ISO’s standardization activities could further develop and promote energy efficiency and renewable energy sources. A Strategic Advisory Group will carry out the implementation of these recommendations and further study in a number of areas, following the strategic orientations set forth by the Task Force. The Technical Management Board will monitor the initiation, consolidation or expansion of standards development and technical work in the areas identified by the Task Force.

Dr. Arnold said: “Clearly, International Standards play a critical role in facilitating increased energy efficiency and broad use of renewable alternative energy sources. This role is recognized by political leaders around the world who have called on the standards community to provide the necessary standards solutions.

“ISO, in partnership with its sister organization the IEC and international agencies such as International Energy Agency (IEA), is committed to providing leadership in the creation of a coherent and complete portfolio of standards addressing this urgent societal need.”
ISO 30th General Assembly

Elections/Appointments:

Seven members were elected to serve on the ISO Council for the 2008-2009 term:

- Brazil (ABNT)
- China (SAC)
- India (BIS)
- Kenya (KEBS)
- Netherlands (NEN)
- Spain (AENOR)
- Tunisia (INNORPI)

Two members were re-appointed to serve for the same term:

- Japan (JISC)
- United Kingdom (BSI)

Dr. Alan Morrison (Deputy Chairman of Standards Australia) was elected ISO President for the 2009-2010 term.

Mr. Jacob Holmblad (Managing Director of Danish Standards) was appointed Vice-President (technical management) for the 2008-2009 term.

Dr. George Arnold was re-appointed as Vice-President (policy) for the 2008-2009 term.

ISO Council nominations:

Mr. Julien Pitton (Switzerland) was appointed as ISO Treasurer for the 2008-2010 term.

Ms. Jai Ok Kim (Republic of Korea) was re-appointed as COPOLCO Chair (ISO Committee on consumer policy) for the 2008-2009 term.

Regional liaison officer for the 2008-2010 term:

Mr. Jesus Motoomull (Philippines) was re-appointed for East and South-East Asia.

General Assemblies 2008 and 2009

The 31st ISO General Assembly will take place in Dubai, United Arab Emirates, from 14 to 16 October 2008.

The 32nd ISO General Assembly will take place in Cape Town, South Africa, from 16 to 18 September 2009.

Thank you, Ziva Patir, Vice-President (technical management)

In a special resolution, the General Assembly recognized that Ms. Ziva Patir has demonstrated outstanding chairmanship and forward-thinking during her term as ISO Vice-President (technical management) from 2004 to 2007. It acknowledged that Ms. Patir has always shown fairness in hearing all points of view and in guiding discussions expeditiously towards consensus positions and recommendations. As Chairperson of the Technical Management Board, the General Assembly praised the numerous achievements of the TMB under her leadership, including ISO’s embarking on new work areas such as social responsibility – upon a personal initiative of Ms. Patir – the substantial time reduction for the production of ISO standards and other deliverables and the increased interaction between ISO’s TMB and IEC’s Standardization Management Board. Ms. Patir was sincerely thanked and the General Assembly wished her continued success in her professional activities and international undertakings.

Thank you, Antoine Fatio, ISO Treasurer

In a special resolution, Council expressed its highest appreciation to Mr. Antoine Fatio for his outstanding involvement in matters of financial management and transparency during his term as ISO Treasurer from 2002 to 2007. It acknowledged, in particular, Mr. Fatio’s contribution to bring the financial situation of the ISO Central Secretariat to a sustainably sound level. ISO Council thanked Mr. Fatio for his commitment to accommodate with courtesy, flexibility and firmness members’ requests for special consideration of their financial situation towards ISO, with a view to reaching agreements acceptable to the members themselves, in accordance with the ISO rules and respectful of the entire membership. ISO Council conveyed to him and to his family its best wishes for the future.

Mr. Håkan Murby, ISO President, presented Ms. Patir (left) with an ISO bracelet in recognition of her work as ISO Vice-President (technical management) from 2004 to 2007.

Mr. Håkan Murby, ISO President, presented Mr. Fatio (left) with a pair of ISO cuff-links in recognition of his work as ISO Treasurer from 2002 to 2007.
**Excellence award goes to developers of ISO industrial data standards**

The achievements of an international team of standards developers in facilitating the exchange of industrial data between disparate computer systems were recognized through the presentation of the Lawrence D. Eicher Leadership Award at the 30th ISO General Assembly.

Every year, the award provides recognition for superior performance by one of the ISO standards development groups. The 2007 edition has gone to subcommittee SC 4, *Industrial data*, of ISO technical committee ISO/TC 184, *Industrial automation systems and integration*.

Presenting the award, ISO President Håkan Murby said that the rapid development of information technologies had created problems related to incompatibility among computer systems used in industrial processes, along with the proliferation of different systems.

“International Standards can contribute to avoiding divergent and competitive approaches,” he declared. For the last decade, ISO/TC 184/SC 4 has been publishing a range of standards to support the efficient exchange and sharing of industrial information between dissimilar computer systems.”

The major development efforts have focused on the STEP series of standards, i.e. Standards for Exchange and Product Data (ISO 10303, *Industrial automation systems and integration – Product data representation and exchange*) for different functional areas, covering product design, analysis and manufacture.

STEP has been used in industry on such projects as the Boeing 777, Airbus 380 and the Eurofighter. It is also used in the automotive sector, as well as in the shipbuilding industries of leading economies.

As part of this work, SC 4 has pioneered the standardization of reusable information modules that provide common definitions which can be used as “building blocks” in multiple standards to enforce interoperability for the end user, and to simplify implementation for software vendors. One hundred and ninety-one such modules were published in a single batch at the end of 2006 and more than 60 are foreseen by the end of 2007.

“SC 4 has developed innovative approaches to managing this volume of work and coordinating the large team of over 250 experts from more than 20 countries who participate in the work,” said the ISO President.

The Chair of ISO/TC 184/SC 4, Mr. Howard Mason, was presented with the award on behalf of the subcommittee.

The Lawrence D. Eicher Leadership Award is named after the late Secretary-General of ISO from 1986 to 2002.
International Standards in support of public policies

The open session on “International Standards and public policies” organized by ISO on 20 September, as part of its programme for the 30th General Assembly, highlighted the contribution of international standards to public policies. More than 400 participants attended, including delegates from 125 countries and representatives of 22 international and regional organizations.

The session featured two panels composed of leaders from government, international organizations, business and societal interests. The first panel, moderated by Mr. Paul Hohnen, an international consultant on sustainability strategies, explored how international standards can support public policies for sustainable development. The second panel, moderated by Prof. Jonathan Koppell of the Yale School of Management, focused on international standards in relation to public safety and security policies.

Good practice, good governance

The trigger for this open session came from the realization that in a globalized world, public policies relating to trade, health, security or the environment, can no longer be developed and implemented in isolation. Increasingly, the use and referencing of standards, forms part of good regulatory practice and public governance. Furthermore, the 151 signatories to the World Trade Organization (WTO) are committed to using international standards in order not to create unnecessary technical barriers to trade through unharmonized regulations and conformity assessment requirements.

At the open session, public policies were considered in a broad sense – covering technical regulations relating to public responsibilities such as safety, security, health, social protection or the environment, as well as supporting research and development, and encouraging innovation and its dissemination, the competitiveness of industry, and the quality and efficiency of public services and public procurements, among other aspects.

Meeting the UN Millennium Development Goals

Mr. Sergei Ordzhonikidze, United Nations Under-Secretary-General, and Director-General of the United Nations Office in Geneva, officially opened the event by explaining how the work of ISO helps to advance the UN’s broader efforts, including meeting the UN Millennium Development Goals.

“Internationally agreed standards help to build capacity, open up markets, facilitate trade and nurture technological innovation,” he said. “They create a level playing field for producers and they provide transparency, reliability and accountability for consumers.

“As detailed technical agreements, international standards contribute to advancing our collective efforts across the three pillars of the sustainable development challenge: the economic, the environmental and the societal dimensions.”

Mr. Ordzhonikidze pointed out that international standards benefit both developing and developed countries as drivers of economic growth.

He also spoke on climate change, describing it as “an urgent and ever-growing challenge, with global implications for development and for security”. Mr. Ordzhonikidze underlined the strengthened political resolve to tackle the climate challenge and declared: “This shared determination must be supported by practical tools that allow us to act. International standards are among those instruments and I therefore welcome ISO’s sustained focus on the environmental field, including on environmental labelling, management and communication, as well as accounting and verification of greenhouse gas emissions.”
Reliance on ISO standards in regulations

Professor Jonathan Koppell, Associate Professor of Politics and Management and Director of the Millstein Center for Corporate Government and Performance, Yale School of Management (USA), spoke on “The politics of quasi-government and the role of international standards in relation to public policies in the globalized world.”

Prof. Koppell mentioned that although ISO is not a governmental organization, the reliance of so many government bodies on ISO standards in their regulations underscores a governmental connection. “I would argue,” he said, “that many international standards constitute public policy because they are very frequently, at least – attempts to create or preserve public goods; shared commodities that cannot be divided or avoided. These are highlighted in today’s two panels: safety, security and environmental quality are classic, quintessential public goods.”

Prof. Koppell went on to list five ways in which “standards shape the public space”.

“First,” he said, “standards not only guide industries and individual firms; they are integrated into national regulations and laws and referenced in international treaties.

“Second, ISO standards create market incentives for private sector actors to follow the law by applying competitive pressure as an enforcement mechanism.

“Third, standards guide public procurement. By facilitating greater transparency and competition, standards act as a barrier to corruption and bolster good government.

“Fourth, standards allow for communication and coordination across borders in a wide variety of policy fields including health, safety and development.

“Fifth, standards can shape technological development. This is subtle but important point in that typically, responsiveness to technological change is emphasized. Effective standards bodies must actually anticipate technological development and enable it by setting the foundation.”

Prof. Koppell summed up by affirming: “The publicness of these functions renders ISO (and other organizations) standards ‘public policy’.”

Supporting public policies for sustainable development

The first panel focused on the contribution of international standards to public policies relating to the three dimensions of sustainable development: economic growth, environmental integrity and social equity.

The concept of sustainable development has been highlighted in the world scene for the past 20 years. Concrete actions are now urgently needed, in particular in relation to climate change, energy efficiency, scarcity of natural resources, as well as access to world markets for developing countries and social responsibility. During the session, it was underlined that ISO could contribute to refining the scope and understanding of sustainable development.

In the current context of globalization, businesses are increasingly becoming a major force of change. It was highlighted that international standards are well placed to bring forth a positive transformation of culture within industry, in particular, because ISO standards foster a sense of ownership from all its stakeholders due to their representative consensus-based development process. As such they can promote production and trade, while protecting the environment and addressing development goals.

Several panellists agreed that governments should create a favourable environment to promote the adoption of international standards, through regulation when needed, but especially through encouragement and reward. For this it is necessary to help governments understand the benefits of standards for them and their constituents.

Good public governance calls for the use of international standards, both to promote the efficiency of public services and to implement good regulatory practices. Public policies and regulations,
increasingly coordinated at the regional and international levels, should set targets and objectives, whilst recognized international standards should enable a level playing field and provide tools to promote good practices, support clear communication, measure progress and monitor achievements.

Governments should pay attention to the emergence and growing impact of private standards on trade, especially from small and medium-sized enterprises (SMEs) in developing countries, and ISO should ensure proper collaboration and complementarity with these initiatives and associated organizations. “Good standards are a public good” said the moderator, Mr. Paul Hohnen. ISO is not always alone in providing standards “but it is the clear leader in this area” he added.

Helping SMEs

Ms. Patricia Francis, Executive Director of the International Trade Centre (ITC) emphasized the importance of standards for the development of SMEs. ITC considers that standards constitute an important vehicle for the transfer of technology and good business practice to SMEs, and facilitate their access to markets.

She added that “meeting international standards is not enough for market access, but it is the first step. The next step is the demonstration of conformity to these standards.” That is why ITC and ISO have jointly developed tools to help SMEs implement standards, such as the joint guidance package on food safety management (“ISO 22000: Are you ready?). Ms. Francis called on the international community to provide assistance to developing countries to increase their participation in standards development and for capacity building.

Aspirations for a sustainable world

Mr. Harsha Singh, Deputy Director General of the WTO, pointed out that WTO rules recognize the important contribution of international standards to international trade. WTO encourages their use, and the participation of its members in their development. He drew attention to the less often cited indirect benefits of international standards to sustainable development, such as harmonization, which avoids the superfluous use of resources.

As a result, consumers can get better prices, SMEs be more competitive, and producers save costs by not having to comply with inconsistent requirements. “International standards… help strengthen economic links among nations, and enhance mutual interest in preserving stable and peaceful economic relations and promoting sustainable development” said Mr. Singh, concluding that “international standards can support our policies and aspirations for a sustainable world.”

Better regulation

Lord Lindsay, Chairman of the United Kingdom Accreditation Service (UKAS) explored how international standards can complement and enhance government regulation to promote business competitiveness, growth and employment performance.

A greater reliance on international standards as “lighter touch” regulation or even as a self-regulatory alternative to legislation can reduce unnecessary regulatory and administrative burdens. Moreover, consensus-based standards might be more successful than imposed regulation at changing an organization’s culture. Gov-
Governments can benefit from a better understanding of standardization and enhanced participation in the process.

Lord Lindsay called for the “need to convince governments of what solutions lie on standards” and emphasized their value for delivering public goods and helping public officials meet their policy objectives. He encouraged a greater use of management systems standards and implementation of the European Union’s Services Directive, and added that standards can contribute in legislative areas such as healthcare, education and security, and for sustainable development.

**Flexibility and credibility for the private sector**

Prof. Masami Tanaka, Vice-President of the Japanese Industrial Standards Committee (JISC) presented the case of the Japanese chemical industry, and how it greatly benefited from the use of international standards, in particular in the field of environmental management and safety.

Industry prefers voluntary standards because of their flexibility, and for their ability to present a consensus-based uniform approach. In Japan, broad communication with stakeholders including the general public, local government and industry contribute strongly to the success of voluntary standards on safety and the environment. As a result, stakeholders adopted a consistent approach and certified companies gained in credibility and safety.

Today Japan has the highest number of companies certified to ISO 14001:2004, *Environmental management systems – Requirements with guidance for use*.

**Striving for ‘soft power’**

Mr. Björn Stigson, President of the World Business Council for Sustainable Development (WBCSD) emphasized the increasing importance of “soft power” for success in today’s market place. Companies gain “soft power”, for instance by protecting their brand with accountability and transparency. Sustainable development is a source of “soft power”, and hence an opportunity for innovation and growth.

International Standards, such as ISO 14001:2004 or the upcoming ISO 26000, *Guidance on social responsibility*, are the tools that will help organizations achieve this. “For companies, demonstrating commitment to accountability and transparency by subscribing to voluntary standards and guidelines has become a standard part of doing business,” he said.

He added that regulators should determine the framework of requirements to address issues of public interest, leaving the stakeholders to develop the standards and tools needed for their implementation.

**Managing risk**

Mr. Georg Kell, Executive Director of the UN Global Compact, recognized that ISO standards already make a key contribution to achieving sustainable development. ISO 26000 will be an important addition that will address a growing demand for openness, communication and transparency on ethical behaviour. He gave the example of financial markets, where organizations working with investments, assets and pensions who have sound responsibility policies are better equipped to manage risk. ISO 26000 will help risk management in a global environment and level the playing field. Failure to follow the trend towards responsibility might lead to exclusion from markets.

Mr. Kell reiterated the UN Global Compact’s commitment to the Memorandum of Understanding with ISO and their desire to cooperate efficiently in this context.

**Hazards know no frontier**

The second panel was dedicated to the contribution of international standards to public policies relating to safety, security and health. Whilst it was recognized that these areas had for a long time been addressed by voluntary standards as a complement to technical regulations, it was underlined that these issues must now be treated at a global level, because the corresponding hazards know no frontier. International standards can also reconcile adequate protection with the avoidance of unnecessary technical barriers to trade.

Hazards faced by consumers, citizens and society at large have evolved due to the pervasiveness of information and communication technologies and the globalization of trade, which broadens and complicates the supply chain and increases the potential for environmental and other risks resulting from industrial activities and new technologies. Responding to natural disasters, threats on homeland security and pandemics requires international cooperation, to which technical and organizational standards can greatly contribute.

It was recognized that consumers have progressed towards citizenship in a global village. They now wish to be protected against these new hazards, while at the same time be able, through their buying or general behaviour, to contribute positively to the environment or social progress. In this context, the panel concluded that research and development on safety, security or health issues should include the upstream identification of needs for the development of international standards.

It also recommended that ISO collaborates with international organizations and groups involved in harmonizing regulations, and promote adequate participation of stakeholders in the development of ISO standards to be used as a substitute or support to regulations.

The newly published document “Using and referencing ISO and IEC standards for technical regulations” was acknowledged as a useful tool to assist regulators in making the best of the ISO and IEC systems.

The issue of compliance and market surveillance was also addressed by the panel, as an indispensable complement to the development of standards. ISO’s contribution in the form of guidance on good compliance and conformity assessment practices should be enhanced.

**Avoiding obstacles to trade**

How can we avoid unnecessary obstacles to trade without compromising public safety security and other societal concerns? asked Mr. Marek Belka, the Executive Secretary of the UN Economic Commission for Europe (UNECE). The solution, he argues, can be partially found through a “common regulatory language” based on jointly agreed safety requirements referencing relevant standards. That is why
UN/ECE “supports the view that regulations should make reference to standards whenever possible”. Legislators, however, should adopt a flexible approach to avoid that standards become frozen in a specific regulation.

Ahead of emerging technologies

Prof. Manfred Hennecke, President of the Federal Institute for Materials Research and Testing (BAM) in Germany discussed the contribution of research and development groups to standards on safety and security. Research institutions can ensure scientific reliability and efficiency during the development process and identify new needs for standardization. This will help standards be on pair with innovation. For that reason, BAM, he explained, is actively involved in the work of the German ISO member (DIN).

Dr. Larry J. Kessler, chairman of the Global Harmonization Task Force (GHTF*) also highlighted the contribution of working with emerging technologies to ensure a timely delivery of standards. This is particularly critical in fields with rapidly evolving technology, as is the medical domain, where he said, GHTF has a tremendously successful collaboration with ISO.

Dr. Kessler also emphasized the value of market surveillance for the identification of dangerous products, but believed that enforcement should take place at the outset, before these products are even made.

Targeting crises

Swedish Ambassador Krister Kumlin, Chair of ISO technical committee ISO/TC 223, Societal security, declared that there has been an absence of recognized best practices on societal security. ISO/TC 223 is uniquely positioned to provide a coherent approach based on international consensus. Its aim is to develop standards that address threats and challenges to society by improving crisis management capabilities, including protection, prevention, response and recovery, mitigation and continuous improvement. The committee has already developed in record time the ISO/CD PAS 22399, Societal security - Guidelines for incident preparedness and operational continuity management.

Consumers make a stand

Mr. Richard Lloyd, CEO of Consumers International, brought forward the voice of consumers, and emphasized the value of their involvement in the development of standards. Standards can help consumers exercise responsible purchasing choices as citizens. “We need standards that reflect realistic consumer use of products,” he said. Standards can address safety issues, but we need to ensure their application through market surveillance. He also called for the application of international standards to protect consumers in the online marketplace.

Mr. Lloyd emphasized the importance of communicating to consumers on the benefits of standards to change the perception that these are business oriented. He welcomed the initiative of ISO 26000 as a step in the right direction with a well-represented multi-stakeholder process.

Contributing to society

Governments and citizens can benefit greatly from the multi-stakeholder consensus-based international standards that ISO develops, as highlighted in the theme of this year’s World Standards Day (WSD): “Standards and the citizen: Contributing to society”. ISO President, Håkan Murby, urged the audience to take advantage of WSD as an opportunity to communicate on their benefits, which was considered a key concern throughout the session.

In his conclusion to the open session Mr. Murby encouraged ISO members to pursue the dialogue and collaboration with public authorities and other stakeholders at the national level. ISO, meanwhile, will continue to build and reinforce its cooperation and partnerships with international and regional intergovernmental organizations.

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* The purpose of the GHTF is to encourage convergence in regulatory practices related to ensuring the safety, effectiveness/performance and quality of medical devices, promoting technological innovation and facilitating international trade.
The themes discussed at the 41st meeting of the ISO Committee on Developing Country Matters (DEVCO) held in Geneva, Switzerland, were focused on increasing developing country participation in international standardization through the engagement of national stakeholders and the work of mirror committees, as well as twinning and partnerships in standards development.

The finalization by the DEVCO/TMB ad hoc Task Force of the Guidance on Partnering and Twinning in ISO Standards Development Activities was welcomed by the members. This document is the outcome of the DEVCO/TMB collaboration initiated at the DEVCO meeting held in Ottawa, Canada, in September 2006, and provides guidance on how to establish a twinning arrangement.

The role of regional and sub-regional organizations was also high on the DEVCO agenda. Mr. Iman Sudarwo, DEVCO chair commented: “With the increasing importance of the regional and sub-regional dimension in relation to cooperation in the fields of standards for trade facilitation and development, it was essential that DEVCO provide a forum to exchange views and share experiences on the subject.”

Representatives from the European Committee for Standardization (CEN), CARICOM Regional Organisation for Standards and Quality (CROSQ), Pacific Area Standards Congress (PASC) and Southern African Development Community (SADC) contributed to defining the issues and understanding the role of regional and sub-regional organizations in international standardization. In view of ISO’s decision to review its policy toward these regional entities, the DEVCO discussions couldn’t have been more timely.
New on the shelf

Using and referencing ISO and IEC standards for technical regulations


As well as giving the reasons as to how ISO standards should be used, the information document Using and referencing ISO and IEC standards for technical regulations contains practical advice and examples to show how they can be used; there are practical examples showing how regulatory texts can be written to give a role to standards. The document is the first of its kind in ISO (and IEC) and will therefore help member bodies and committees writing standards to have constructive dialogues with their governmental and public authority stakeholders.

Standards are increasingly being used by governments as technical support to help implement regulation and policy. This can be seen at the national and regional level and also where there is international regulatory activity. ISO and IEC standards are highly suitable for use in this context as they apply to all these levels, and as they are fully compliant with World Trade Organization (WTO) requirements, regulators avoid creating technical barriers to trade. Some key messages for anyone involved in shaping regulations and policy are that standards from ISO and IEC:

- support the technical aspects of societal and environmental policies and contribute to sustainable development across the world;
- offer the same level of consumer protection whether applied in a mature or an evolving economy;
- allow products to be supplied and used across different markets and reflect the state of the art.

New suite of ISO supply chain management standards to reduce risks of terrorism, piracy and fraud

by Maria Lazarte, Assistant Editor of ISO Focus

The ISO 28000 series of standards on supply chain security management systems, which have just been upgraded from their status of Publicly Available Specifications to that of fully fledged International Standards, will help to reduce risks to people and cargo within the supply chain. The standards address potential security issues at all stages of the supply process, thus targeting threats such as terrorism, fraud and piracy.

ISO Secretary-General Alan Bryden commented: “Threats in the international marketplace know no borders. The ISO 28000 series provides a global solution to this global problem. With an internationally recognized security management system, stakeholders in the supply chain can ensure the safety of cargo and people, while facilitating international trade, thus contributing to the welfare of society as a whole.”

The ISO 28000 series of International Standards specifies the requirements for a security management system to ensure safety in the supply chain. Its standards can be applied by organizations of all sizes involved in manufacturing, service, storage or transportation by air, rail, road and sea at any stage of the production or supply process. The series includes provisions to:

- establish, implement, maintain and improve a security management system;
- assure conformity with security management policy;
- demonstrate such conformity;
- seek certification/registration of conformity by an accredited third party organization; or
• make a self-determination and self-declaration of conformity.

The following standards have been published recently:

• **ISO 28000:2007**, Specification for security management systems for the supply chain;

• **ISO 28001:2007**, Security management systems for the supply chain – Best practices for implementing supply chain security – Assessments and plans – Requirements and guidance;

• **ISO 28003:2007**, Security management systems for the supply chain – Requirements for bodies providing audit and certification of supply chain security management systems;


The ISO 28000 series will facilitate trade and the transport of goods across borders. It will increase the ability of organizations in the supply chain to effectively implement mechanisms that address security vulnerabilities at strategic and operational levels, as well as to establish preventive actions plans. Organizations can then continually assess their security measures to protect their business interests, and ensure compliance with international regulatory requirements. By encouraging the implementation of these standards by the various actors in the supply chains, countries will be able to maximize the use of government’s resources, while maintaining a level of optimal security.

The ISO 28000 series indeed assist in implementing governmental and international customs agency security initiatives, including the World Customs Organization’s Framework of Standards to Secure and Facilitate Global Trade, the EU Authorized Economic Operators Programme, the US Customs Trade Partnership against Terrorism, and the International Maritime Organization’s (IMO) International Ship and Port Facility Security Code.

The report of IMO’s Maritime Safety Committee meeting held earlier this month, acknowledged that “the ISO 28000 series were now published and numerous ports, terminals and organizations were being certified by third party independent accredited certification bodies;” while recognizing that “ISO standards could be applied to all ships, irrespective of size, type, purpose and whether operated internationally, domestically or within internal waters.” The same can be said of all other transport segments in the supply chain.

The ISO 28000 series was developed by ISO/TC 8, Ships and marine technology, in cooperation with other organizations and stakeholders. Captain Charles Piersall, Chair of ISO/TC 8 explained that “in order to deliver a much needed timely aid, the standards were made available to the public as PAS, prior to publication as International Standards.” ISO/TC 8 has published over 100 standards in support of international organizations.

ISO 28005, Ships and marine technology – Computer applications – Electronic port clearance (EPC) is currently being developed as the latest addition to the series.

ISO 28000, ISO 28001, ISO 28003 and ISO 28004 are available from ISO national member institutes and from the ISO Central Secretariat (sales@iso.org).

**New ISO standard will reduce risks of head injuries in child pedestrian accidents**

*by Elizabeth Gasiorowski-Denis, Editor of ISO Focus*

Head injuries are among the most common injuries sustained in automobile-to-child pedestrian collisions, and are the leading cause of death. ISO is helping to reduce the risk by an International Standard for simulating the head-impact conditions of a child sustained in an actual accident/collision.

ISO 16850:2007, Road vehicles – Pedestrian protection – Child head impact test method, is expected to facilitate the development of more pedestrian-friendly cars, reduce serious head injuries – and fatalities – of children and enhance safety in real world crashes.

The new standard provides a crash test method for simulating the front impact of a vehicle to a child pedestrian’s head. The reconstruction results
Nearly 500 articles on ISO management system standards in English, French and Spanish on new CD

by Roger Frost, Manager, Communication Services, ISO Central Secretariat

Nearly 500 articles constituting a mine of information on worldwide developments relating to ISO 9001, ISO 14001 and other global business standards developed by ISO are available in English, French and Spanish on a new CD.

The second edition of the ISO Management Systems Magazine Database includes the complete collection in the three languages of the 494 articles that appeared in the magazine in the 32 issues from the first September-October 2001 issue up to and including the November-December 2006 issue.

“This means that new subscribers can share in the know-how and knowledge already provided,” says ISO in its introduction to the product, under the headline of “Concentrated ISO Power!” adding, “Both new and existing readers will benefit from the distillation of this information into an electronic, searchable format that they can pop into a briefcase and consult on a computer anywhere in the world.”

ISO Secretary-General Alan Bryden commented: “This CD is eminently suitable for the many students who are assigned or choose university or MBA projects related to ISO’s management standards, as well as to small business managers and managers of enterprises in developing countries and transition economies who recognize these standards as forming the backbone of global supply chains.”

ISO Management Systems integrates global business and standards intelligence. It provides a strategic overview of ISO’s global standards for global markets, including coverage of the following:

- Worldwide developments related to ISO’s well known management system standards ISO 9001 (quality) and ISO 14001 (environment) and new ones for food safety (ISO 22000), information security (ISO/IEC 27001), supply chain security (ISO 28000), the automotive sector (ISO/TS 16949) and the oil and gas sector (ISO 29001).
- Guidelines for implementing management systems in health care, education and local government.
- Standards for conformity assessment, services, social responsibility and business technologies.
- Standardization initiatives at national level and outside the ISO system.

The ISO Management Systems Magazine Database is available from ISO national member institutes and from ISO Central Secretariat (sales@iso.org).

1) Data collected from International Harmonized Research Activities (IHRA).
Industrial automation

Industrial automation is one of the tools that help industry face the challenges of today’s competitive market place. In the December issue of ISO Focus, we explore the different facets of International Standards and industrial automation. With industrial automation, manufacturers can improve accuracy and speed, while reducing costs. This is achieved by using control systems, such as computers, to manage industrial machinery and processes where human operators are not required or are less reliable. Industrial automation helps industry improve quality, as well as increase flexibility during the production process. As a result, consumers benefit from safer and better products.

International standards play a crucial role in the optimization of industrial automation. In a rapidly changing global environment, they address industry demands for interoperability and integration of processes and technologies, cost reduction – particularly for SMEs, flexibility, and communication among industry partners and for product information. Learn more about industrial automation and ISO standards in the next issue of ISO Focus.

ISO technical committee ISO/TC 184 is responsible for developing standards on industrial automation and integration, which greatly benefit the automobile, aeronautics, defense, electric devices, energy and IT sectors. In the next issue, find out why ISO/TC 184 subcommittee SC 4 won the Lawrence D. Eicher Leadership Award for superior performance of an ISO standards development group.

Learn also, all about the standard for exchange of product model data (STEP). This innovative tool provides a mechanism for describing product data throughout the lifecycle of a product, independent of any particular system! As such, it can be used for implementing and sharing product databases and archiving. STEP standards represent hundreds of millions of dollars of proven investment, helping the generation of consistent product information models throughout the range of products covered by ISO. STEP has been used in industry on such projects as Boeing 777, Airbus 380 and Eurofighter. It is widely used in the automotive sector and shipbuilding industries of leading economies.

The next issue also features an exclusive interview with Katarina Lindström of Volvo. Readers will learn how this leading transport solutions provider uses International Standards to support its business.

If you want to find out more about industrial automation and how International Standards are helping it redefine the way we manufacture products and reshape the global economy, don’t miss the next issue of ISO Focus.

Is my watch really water resistant?

Water resistance is a much sought-after quality in watches, but one that consumers have repeatedly found problematic due to misleading advertising and strict restrictions of use. According to their warranty, watches said to resist submersion of 30 or even 50 metres, often cannot be used for swimming. The reason behind this is that watches passing resistance tests upon manufacture might lose their effectiveness as soon as they are taken out of the factory (transportation, use, etc.).

Technical committee ISO/TC 114, Horology, is therefore working on an innovative draft standard that rather than focus on tests will ensure the delivery of a value service that consumers can trust. The new standard will create awareness among companies of their marketing responsibilities, thus selling watches that retain the qualities they offer. Find out more about this innovative approach that will help companies give consumers what they really need, in the December issue of ISO Focus.
Get it from the source.

ISO Management Systems Magazine Database.

To survive, businesses need to be well informed. In a world awash with information, how to be sure that what you’re getting will add value? By getting it from the source. ISO Management Systems magazine provides information on ISO management standards like ISO 9001 and ISO 14001 straight from the source – ISO. And it is full of feedback on the implementation of the standards by the most reliable source there is – the users.


Available from ISO national member institutes (listed with contact details on the ISO Web site at www.iso.org) and ISO Central Secretariat Web store at www.iso.org or e-mail to sales@iso.org.


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