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 focusing 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-
Universities 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

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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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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 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.