
Chapter I

ETH World— Implementation of a Virtual Campus Infrastructure and E-Learning at ETH Zurich

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ABSTRACT

ETH World is a strategic initiative for establishing a new virtual campus at the Swiss Federal Institute of Technology (ETH) Zurich. ETH World will provide services in the areas of research, teaching, learning and infrastructure for the established disciplines in technology and natural science at ETH. The initiative aims to develop the excellence of ETH Zurich, making use of the new facilities and infrastructure instruments and methods that technological development offers. It is an integral part of the university, supporting its academic planning, infrastructure and financing processes. In its first part this paper describes the background of ETH World and an international conceptual competition organized in 2000 to seek ideas for the “infostructure” of this new academic environment. Some results of the competition are presented along with other projects that have been launched as building blocks of ETH World. The second part looks in some detail at e-learning as one of the focal points of ETH World, presenting two cases studies in architecture and control engineering education.

ETH WORLD

Introduction

ETH Zurich, the Swiss Federal Institute of Technology, was established in the tradition of a polytechnic in the mid 19th century. It has since grown from a few hundred people to a community of more than 18,000 students, faculty, researchers and staff, covering the whole range of technical and natural sciences. Its facilities are located in more than 200 buildings in downtown Zurich and on the campus of Hönggerberg eight km from the center.

The university's technical infrastructure is no less complex, with a hugely diverse range of computers and devices, all conceivable operating systems, and many expert users with the broadest range of needs.

In response to the need for adapting this complex organization and its infrastructure to the needs of the information society, ETH Zurich has launched a virtual university project named "ETH World."

The goals have been defined for ETH World (Hagström & Schaufelberger, 2001):

1. to support and augment research facilities with new types of information and communication technologies and offer a platform for collaborative and learner-oriented activities, independent of time and space;
2. to improve access to existing and new scientific and administrative services;
3. to connect virtual and physical space;
4. to provide optimal communication and globally accessible information, not least by breaking down linguistic barriers;
5. to strengthen the different ETH departments and their interdisciplinary collaboration;
6. to create synergies through the integration of advanced research, education and infrastructure;
7. to extend areas of research to accommodate the requirements of the information society;
8. to support students, employees, professors and alumni in their efforts to promote the development and globalization of the ETH community;
9. to provide a forum for cooperation and knowledge transfer for the benefit of business, politics, nongovernmental organizations and society;
10. to enhance the attractiveness of ETH for potential students, cooperation partners and faculty members as well as for sponsors and professional bodies.

The scope of ETH World thus extends beyond mere e-learning to cover all aspects of the university activities: education, research, services and administration.

The first steps towards ETH World were taken in 1999 when the university's executive board decided to finance a number of pioneer projects, putting in place hardware and software infrastructure and developing new concepts.

But this ad hoc approach did not address the broader questions: What physical infrastructure, communication, services and organizational structures should be put

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