Foreword

Universities have always been at the forefront of the use of technology for teaching and research. *Arpanet*, the pre-cursor to the Internet was initially developed by a consortium of four Universities, SRI (in Stanford), the University of California at Los Angeles, the University of California at Santa Barbara, and the University of Utah. At first the Internet itself was what was being researched and developed. Later it became the key communication and knowledge-sharing source of academics with the development of email, search engines and protocols such as Archie, Veronica, Gopher. In the early nineties it was commonplace to hear of academics collaborating across vast distances and sharing data across networks.

In the mid-nineties things changed with the colonization of the Internet by corporate business. Although the development of the World Wide Web meant that academics could communicate more easily, university technology bills skyrocketed, and, suddenly business cases had to be developed for new or even continued use of technology. This increase of cost of technology to universities coincided with a push for a more business-like approach to the very nature of the university itself. Universities were forced to move away from their role as custodians of knowledge, and move towards strategic plans and business models. A complex relationship now exists between universities and technology. However, what is necessary now is the *integration* of technology into the fibre of the university. The learners of the 21st Century live technologically integrated lives. They do not distinguish between cellular telephones, text messaging devices, cameras, Internet browsers, email readers, music players, and satellite navigation systems. They just carry them in their pockets. Technology is already smoothly integrated with their everyday lives. Thus technology should be fully integrated with their academic lives. We need to recognize the diversification of the student population and consider the value of technology for students, and be aware of how students use technology.

There are two schools of thought regarding the use of Information and Communication Technology (ICT) in higher education. On the one hand technology is seen as the great liberator – an enabler that will deliver a new age of enlightenment with knowledge once again being set free – much as Gutenberg revolutionized university teaching in the mid 1400s with the development of the printing press. In a world with free knowledge the university can once again resume its position as the provider of a liberal education. On the other hand technology is being used to advance the business and entrench the current autocratic, business-driven structures that universities have become. Learning management systems such as *Blackboard* and *Moodle* have the potential to liberate knowledge and make it available at any time and any place. They enable online classrooms and social spaces where students can roam freely and explore intellectual activities. However these technologies are often used to bolster the monolithic university business structure. They are used to support the concept that the university is the sole font of knowledge that is stored and protected by a username and password, and that universities run according

to tight schedules with strict deadlines that are strictly enforced by the learning management system. Gone is the concept of a liberal education, enter the world of the digital diploma machine.

It is against the background of this dual nature of technology in higher education that this book becomes significant. It contributes to improved pedagogy for deeper learning, as well as increased efficiency for improved performance. Improved pedagogy involves aligning teaching and learning with learner needs and with what we know about how people learn. But this cannot be done in isolation. Equally important are lecturer or instructor issues as well as institutional issues. How does the institution support its staff when they make the transition from face-to-face to online teaching? Technology in education, however, is more than just the online delivery of courseware. There are augmentative and assistive technologies for students with disabilities as well as software to automate testing and evaluation. Furthermore, the technology itself needs to be studied, developed, and improved not only as universities engage in research about technology in higher education, but also since technology forms the primary tools of many modern sciences. Thus medical research, for instance, cannot be divorced from research on medical information technology.

The university, of course, is also an enterprise such as any other, and enterprise resource planning software forms the backbone of the administration, leading to issues of security, data preservation and disaster recovery. The use of technology in higher education represents a significant investment and regardless of whether the underlying institutional philosophy tends towards liberalisation or regulation, it remains essential that careful planning be done to ensure an effective use of an expensive resource. Aspects regarding technology adoption, sustainability, and technology transfer support universities' need to invest wisely, to obtain user buy-in and develop a long-term perspective, in order to benefit from their innovation. Finally, as businesses, universities need to assess the impact of technology not just on their business model, but also on the quality of the service that they deliver.

Regardless of one's position, either as an instructor or as an administrator, it is essential to remember that the key function of the university is to prepare its students for the future – a future which those very students will be creating, and thus a volume such as this cannot be compete without a glimpse of what can be expected in a while from now. The editors and contributors of this volume can be commended for their valuable input into the field of technology in higher education.

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