



Building an Informational Bridge to China

China is undergoing a technological sea change in the late 1990s, and the effects will be felt far into the new millennium. The country will play a major role—perhaps *the* major role—in the computer-dominated world of the next century.

Key to that role will be the availability of information. For today's IT professional in China, there is no more pressing need than for accurate, up to date technical information. That message came through clearly during a series of recent fact-finding meetings conducted by a select ACM delegation.¹ The goal of the trip was to explore ways in which the organization can more readily address the needs of IT professionals in this region. During the 10-day marathon through China, the ACM contingent met with computing professionals, government officials, students, and academicians representing the Pacific-Rim nations of Australia, China (Hong Kong), India, Japan, Malaysia, New Zealand, Singapore, South Korea, Taiwan, and Thailand.²

During the trip, the visitors got a first-hand look at the rapidly changing technological scene in China and met with many of the educators and professionals who will be spearheading that drive. "We saw a deep level of commitment to improving the state of computing in China and throughout the Asia/Pacific region," said Joe DeBlasi, ACM Executive Director. "Educators told us they needed rapid, affordable access to the latest technical information. To become globally competitive, they have to increase funding in IT-related research so they

can build new research centers and create a robust information infrastructure. The ACM Digital Library was well received during the trip; it was seen as a key element in the process of change. Because of this, we've begun a series of discussions to make the Library more accessible in the region."

China currently lags behind many other countries in the Asia/Pacific region, but its pace of development is breathtaking. One indication of the growth rate comes from the China Association for Science and Technology (CAST) in Beijing, who told the ACM delegation there are already seven million PCs in China and over

500,000 Internet users in a population of 1.2 billion people. In Shanghai, a bellwether for the country as a whole, 8% of families currently own PCs, up from only 1% in 1993. By the year 2000 as many as 20% of Shanghai's families could own PCs.

PC growth in China is just one indicator of change. Another is the rapid flow of Western development money into China.

Several major computer companies, including Intel, Dell, and Hewlett Packard, recently announced plans to invest billions of U.S. dollars in technological development in China. This influx of R&D money, combined with the ever-increasing numbers of joint ventures between China and Western companies, will further strain the resources of a university system already struggling to turn out sufficient numbers of qualified computer professionals.

Information Access

We found ACM's Digital Library of major interest to Chinese educators, researchers, and students throughout the trip. All of the groups expressed a clear need for faster and more economical access to the world's largest collection of online computer technical information.

Chinese educators and researchers said they preferred to receive the original English versions of the Library's content rather than translations. They noted

¹Chuck House, ACM President; Joe DeBlasi, ACM Executive Director; Mary Jane Irwin, ACM Vice-President; Brent Hailpern, ACM Secretary; A. Joe Turner, ACM Treasurer; Stu Zweben, ACM Past-President; Doris Lidtke, ACM SIG Board Chair; Christopher Morgan, ACM Public Relations Coordinator; Pat Ryan, ACM Deputy Executive Director; Lillian Israel, ACM Director, Membership; Fred Aronson, ACM Associate Director, International Activities; David Arnold, ACM Council International Regional Representative; Barbara Simons, Chair, ACM U.S. Public Policy Committee (USACM); Kam-Fai Wong, ACM Membership Activities Board, Asia Pacific Coordinator.

²Today the organization has over 6,000 ACM members across the Asia-Pacific region, making it the fastest growing membership area.

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that translations take time and can affect accuracy. They also pointed out that Chinese computing scientists and students learn English as a primary language, further bolstering the preference for English-language versions of technical information. Japanese representatives we met with, however, indicated a preference for translation into Japanese wherever possible.

Downloading information from the ACM Digital Library server in the U.S. can be slow and expensive from China or other points around the Pacific Rim. For this reason, several Chinese educational institutions welcomed the idea of setting up mirror sites for the Digital Library in mainland China. The ACM hopes to make the Digital Library available as inexpensively as possible in the region, both to boost membership in China and promote cooperation between Chinese researchers and ACM members around the world.

The ACM and groups such as the China Computer Federation (CCF) and the Shanghai Computer Society (SCS) are currently discussing possible ways to strengthen cooperation in technical activities (for example, joint conferences and seminars) and to make ACM programs, products, and services more accessible to their memberships. This would include making the Digital Library available to IT organizations and professionals in China by installing one or more ACM Digital Library servers in China and having the Library made accessible through one or more university networks. The ACM is also investigating ways to expand the Library to include materials of the CCF, SCS, and other organizations so as to increase its value as a global resource for information.

We plan to establish local ACM general and special-interest chapters to develop activities and to facilitate interactions between ACM, CCF, SCS, and other

area organizations and professionals. Indeed, the idea of establishing an ACM center in China to coordinate activities is currently under consideration.

A Strong Desire to Compete

One indicator of the intensity of computing in the Asia/Pacific region is that a student team from the Hong Kong University of Science and Technology placed among the top 10 winners of the ACM programming contest in 1996, outscoring over 1,000 teams from six continents. This year, Tsing Hua University of Beijing placed seventh, while Shanghai's Jiatong University tied for eleventh place. Another Pacific Rim entry, Melbourne University, placed sixth.

Another gauge of computing growth in China is the rapid rise of institutions such as the six-year-old Hong Kong University of Science and Technology which has grown to 40 full-time computer science faculty members and has a student-to-faculty ratio of 11 to one. Professional computer societies are also growing rapidly; the Shanghai Computer Society already has over 2000 members.

University computer networks are well advanced in China and serve as leading-edge models for what will undoubtedly happen to the country at large. Twenty universities in Shanghai, for example, are linked together to share information about digital libraries and to facilitate computer curriculum development. A similar network exists in Beijing.

The Shanghai Government Computer office alone plans to spend over \$4 billion (U.S.) on IT development in their region by the year 2000. They have begun major training efforts to educate computer personnel. By age 15, all residents will have taken a computer literacy test. To date, 1.3 million Shanghai citizens have taken the test. **C**

The ACM delegation met with the following groups during its 10-day trip to China last March.

Hong Kong

- International meeting with ACM representatives from the Asia Pacific region
- Hong Kong Institute of Electronics, Information Technology Division
- Hong Kong Computer Society

- Chinese University of Hong Kong
- Hong Kong University of Science and Technology

Beijing

- China Computer Federation
- Beijing ACM SIGMOD
- Chinese Association for Science and Technology
- Chinese Institute of Electronics
- Tsinghua University faculty

and students

- Institute of Computing Technology of the Chinese Academy of Sciences
- Network Center of the Chinese Academy of Sciences

Shanghai

- Shanghai Computer Society
- Shanghai Jiatong University faculty and students
- Xiangjiang Computer Group