Appendix C: The World is Talking to Itself – Why Not Join in the Conversation?

In February 1992, the University of Hawaii Board of Regents adopted a visionary document that had been well–researched by committees made up of some of the UH system's best information technology workers: the Strategic Plan for Information Technology. The Plan's first recommended action was to establish a systemwide Chief Information Officer (CIO), an individual who would help direct and orchestrate all areas of UH information technology at the highest level. Another priority action recommended that the existing technology advisory committee infrastructures be changed to adequately allow "faculty, student, executive, and staff input" into all decision–making that affected the direction of information technology (UH 1992:21). It was proposed that this action be completed by the end of 1992.

In all, the Strategic Plan for information Technology (SPIT), outlined 9 strategic objectives and over 30 priority actions, each with a timeframe ranging from 1992 to 1997. One action called for the provision of "full systemwide electronic mail" and "full access to all students", with the timeframe set at 1992 to 1993 (UH 1992:22). Another aimed to rehaul the University's fiscal information system sometime during 1992 to 1996. Yet another proposed to develop by 1994 technology demonstration centers on every campus to promote the sharing of "developments, discoveries, and experience" (UH 1992:26–27). These centers would be supported as much as possible from manufacturers and vendors.

Today, as wonderous developments occur within the worlds information technology community, we must ask ourselves, what ever happened to SPIT? There are no signs of a new, improved infrastructure, no CIO, no systemwide access, no demonstration centers, and very little sharing of developments, discoveries, or experience.

Now the UH Manoa campus is in danger of losing federal funding for research – their life blood – very soon, if their accounting system is not made more efficient and up–to–date (Hotema 1993). Did anyone read the paragraph in SPIT that described the fiscal information system as a "20–year old batch system...[that] does not begin to address end–user needs for timely information" (UH 1992:18)? Planning is supposed to help anticipate future needs before a crisis emerges.

It would be unfair to wholly blame the system for its failings, considering that proper planning anticipating this situation was available well in advance. Funding within the UH organization is lopsided and untimely, and has been one of the biggest roadblocks for the achievement of SPIT's goals. Timely allocation of monies within the system is of the utmost importance. Every week missed in the development of contemporary information technology today may cost you months, if not years, in the near future.

For UH and the DOE to fulfill their mission of educating the information workers of tomorrow, it is in their best interests to listen to expert analysis regarding their use, or abuse, of high technology. Education is a field that stands to be completely revolutionized by the ever–onward march of information and network technology.

Hawaii as a state needs to address its problems seriously if it is to prepare for the future adequately. Witness the 30 jobs recently cut at Intelect (Smith 1993), once one of Oahu's high–technology success stories. The shrinkage of the company is even more tragic when one considers the product that Intelect is developing: digital switches, the key to high–speed communications. Without nanosecond–fast digital switches to relay data among different network paths, it is impossible to conceive of fiber optics and ISDN on any large scale.

And who amongst us cares about networks? Time magazine certainly does, evidenced by the fact that they have become the first national magazine ever to be fully offered online. Users can also talk to each other about the magazine interactively if they wish, or send email to the editor (Briefs 1993). Or ask the National Science Foundation, which in December 1992 upgraded the speed of their network – which connects every major graduate, research, and four–year university in United States – to 45 megabits per second, fast enough to send a 20–volume encyclopedia from coast to coast in less than 23 seconds (NSF 1992). Or ask the California assembly, which unanimously passed Bill AB1624, the first such legislature of its kind, allowing full access to legislative records and bills to users on the Internet – all 15 million of them (Warren 1993).

Yet in a 1991–1992 ranking of 50 states by student–to–computer ratios, Hawaii came in third to last (Kondracke 1992). These numbers won't mean a thing if there is no support for or understanding of computers within the classroom. The $450,000 Hawaii's legislature earmarked for the multimedia industry via MIDAS (Multimedia Industry Development for Academic Software) is laudable (HSSC 1993), but as currently proposed it falls short of its mark. Much of the state's struggling multimedia industry has little experience in the field of academic software development, educators with good ideas are forced to jump through bureaucratic hoops to receive minimal funding, and there are too few true software developers in Hawaii to build up anything near the critical mass needed to begin an enterprise – they all left for the mainland a long time ago.

What is a state to do?

Provide continued support for those doing the educating. The solution to computer illiteracy will not come from simply throwing money at the problem. It must come from a fundamental change in the way educators and administrators view academic computing. First and foremost, regular, comprehensive training of faculty and staff must be made available. A teacher who uses a $5,000 computer to teach typing is ultimately worth less than a computer literate teacher who makes the most out of a $500 computer. Every dollar invested in providing the workhorses of the educational system the means to use today's technology to the fullest equals a thousand dollar return in the future.

Treat computer literacy for what it is – a necessary skill. Implement minimum computer literacy requirements from kindergarten to college. Introduce core classes at every level. It is no longer enough to teach students how to find an article in a newpaper or how to use the Dewey Decimal System. They must learn to navigate library databases and the worldwide networks, to search CD–ROMs and scan electronic texts. Institute new programs and degrees in key fields – object–oriented programming, multimedia design, administrative networking, desktop publishing. Educators must take a fresh approach to curricula that technology will completely turn upside down – commercial art, printing, information science. Place students in control of technology; give them the opportunity to take the ball and run with it. Twenty years from now, they will take it anyway.

Improve communications. It would be pitiable to see Hawaii's information age wither away due to a lack of communication. Effective communications and infrastructure was one of the key themes of SPIT. These themes continue to make themselves heard. Better public support and education can help funding. Better funding can help improve the UH network. Better communications between community colleges, where a growing majority of Hawaii's students now go (UH Fall 1992), and the K–12 community can lead to higher enrollment and a beneficial gathering of alternative education experience. Every campus must organize effectively and take action as a system – the weakest link in this chain continues to be middle management. Are those providing the services communicating to those receiving the services?

Prevent the rise of the technological underclass. It is unsettling to see only the most expensive campuses and the most well–funded programs use the best technology. Although community colleges now serve as the only stop before the workplace for many students, they remain behind in the effective transfer of technological skills to these new workers. For years Hawaii FYI has provided an incredible wealth of state information and services to the public, but its heaviest use has been attributed to interactive talk services (Okamoto 1993). FYI is a good thing, but it can be made so much more effective by improving both its interface and its presentation to the public. Improve support for community colleges and publicly available networks, and those without become those that can. It is not enough to depend on any one project – such as Maui's supercomputer endeavor – to bring true access for all to Hawaii. True success rests upon a committment to equal access within the educational, legislative, and commercial sectors alike.

Provide more support and incentive for local commercial network providers. Nobody wants to see the day when hundreds of businesses end up having to use the UH network because there is no feasible commercial alternative. Public access providers such as Pegasus and Hawaii FYI must be encourged to grow through legislation. Better networking among Hawaii's high–tech incubators and research facilities must be established if there is to be any effective transfer of research information to growing high–tech companies. But due to the fact that these incubators are commercial in nature and yet do UH research, this creates a gray area that hampers development of a worthwhile communications network. By eliminating gray areas through legislation, new industries will grow and prosper. The state must encourage the development of dedicated network servers for businesses and federal use if serious commercialization is to occur.

There are a few good signs that Hawaii is on the right track. The outstanding DOE project to introduce computers and networks into the elementary schools has changed the way many in the system view education. One principal was so elated she grabbed a shovel and helped others in the community dig the trenches for her elementary school's network cabling. Benjamin Parker Elementary boasts campus–wide high–speed fiber optic hardware, some of which was donated at great expense by vendors (Dengler 1993). Ask any instructor there and they will proudly show you multimedia essays on networking created by its students. The DOE hopes that one day every elementary school will be connected to the Internet – a good sign that true global education for all students may not be not far off. Bishop Museum is now on the Internet, too. By offering historical and cultural information not just to the public but to the rest of the world, they are doing a great service to Hawaii's culture and legacy.

Throughout the rest of the world, people are educating each other globally about their home countries and culture. You can find hypermedia guides to Australia, New Zealand, and the city of Passau, Germany on the Internet. Companies are providing online book catalogs, electronic magazines, and headline news services. Individuals are creating virtual museums, public art galleries, and educational exhibits. Visitors from 25 countries have visited Honolulu Community College's hypermedia site to see what it has to offer. The world is talking to itself; why not join in the conversation?

There are thousands of good resources on the Internet. The day will come when it will no longer be feasible for any state to ignore the wealth of this global network. By providing support and giving attention to key areas in its educational, commercial, and public access systems, Hawaii can learn to make good use of its struggling high–tech industries. If it can provide a strategic plan for information technology of its own – and carry it out properly – it stands to make good on the opportunities of today and the promises of the future.

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