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IU professor analyzes Chile's 'Project Cybersyn'

Eden Medina came to Indiana University in 2004 and officially joined IU's School of Informatics faculty in 2005. Her background as an electrical engineer -- combined with an interest in Latin American history -- led Medina to her current research interest in Project Cybersyn, the subject of her upcoming book (scheduled for 2011 publication by MIT Press).

Project Cybersyn was an early computer network designed to regulate Chile's economic transition to socialism during the government of Salvador Allende. Medina's book delves into this history of technology and explores how Chilean computer use reflected different ideas of modernity during the 1960s and 1970s.

Medina, an assistant professor of Informatics, hopes the new book will make more people aware of computer history in Latin America. "Most people think of computer technology as something that emerged from the United States post World War II. Seeing that a Latin American country like Chile had such an ambitious and unique application of computer technology is surprising," she said. "I think the image of the operations room looks like something out of 'Star Trek' or *2001*. Whenever I show that image, people are stunned. Most people wouldn't associate that futuristic image with the Allende period in Chile."

While the Cybersyn control room looked futuristic and modern, it was held together by a lot of human labor, Medina said. "For example, the flat panel projection screens used a series of slide projectors located behind the wall that were attached to the armrests of the chairs. When you pushed a button on the armrest, it would change the slide on the screen. Each of these slide images was hand-drawn by some of Chile's top graphic designers. It looked like something that was real-time and highly automated -- but you have to remember, this was the 1970s."

In addition to her position with the School of Informatics, Medina is an adjunct assistant professor of history at IU and is affiliated with the Center for Latin American and Caribbean Studies (CLACS). In 2007, she received the IEEE Life Members' Prize in Electrical History and a Scholar's Award from the National Science Foundation. Medina received her Ph.D. in 2005 from the MIT Doctoral Program in the History and Social Studies of Science and Technology and studied electrical engineering and women's studies at Princeton University. She has been awarded grants from the Social Science Research Council and the American Council for Learned Societies, the Mellon Foundation, the National Science Foundation, the Charles Babbage Institute and the Dibner Institute for the History of Science and Technology.

Here, Medina tells *Live at IU* about the themes of her book-in-progress.

Live at IU: Describe the role of information technologies in the emergence of new forms of socialist governance in the 1960s and '70s in Chile.

Eden Medina: Chile has a long history of computing. IBM began selling tabulating machines to the Chilean market in the 1920s. These tabulating machines, and later mainframes, contributed to the expansion of the Chilean government that occurred from the 1930s-1960s. However, these machines were always used as powerful calculators whose sole purpose was to process data. When Allende came to power, the Chilean government thought they might be able to use computers to manage the national economy and the growing number of industries that were being placed under state control.

The government worked with a British cybernetician named Stafford Beer, and together they designed a system that treated computers not as number-crunching calculators, but as part of a communications network. It was much more akin to how we use computers today, but at a moment when computer networking was still in its infancy. This system became known as Project Cybersyn, and it was intended to assist rapid decision making, not to crunch data for reports and long-term economic plans.

LIU: Can you describe what you learned about the Chilean Cybersyn project and the role it played in regulating Chile's transition to socialism under Allende?

E.M.: The project consisted of four subprojects: an economic simulator, custom software to check factory performance, a futuristic operations room and a national network of telex machines that were attached to one mainframe computer. Because of Chile's limited computer resources, the Cybersyn team had to build a computer network that consisted of one computer. The solution they developed was pretty ingenious.

The project was still under construction when, on Sept. 11, 1973, a military coup overthrew the Allende government and resulted in Allende's death. Parts of the system, such as the network of telex machines, had helped the government improve its internal communication for almost a year. The system also improved the government's data-collecting abilities. Economic data that used to take one year to amass and publish was now reaching the government every day with a two-day lag. More ambitious projects were also under way, such as having workers build cybernetic models of their factories or designing meters to register public reactions to political speeches in real time. But these efforts were cut short.

In the book I draw several comparisons between the design of this technological system and the path of the Chilean road to socialism. For example, Allende said the Chilean revolution would be peaceful, that it would be a revolution "with empanadas and red wine," at very little cost. But implementing this peaceful transition entailed a day-to-day struggle and in the end the costs were high. I view the system the same way: It projected a image of control, one where the economy could be run with the touch of a button, but the behind the scenes it took a lot of work and did not function the way people expected.

LIU: What drew you to this topic and region, and what do you hope to make clear through your research?

E.M.: I was born in Colombia, but grew up in the United States. I have always been fascinated by Latin America and kept telling myself that someday I would learn more about the region of my birth. Before getting my Ph.D. in the History and Social Study of Technology, I worked as an electrical engineer and also took a number of courses in women's studies. Through women's studies I learned to be critical of science and technology, to not see them as objective or as signs of progress, but rather as something that is historically situated and socially shaped. This is what took me to history -- and given my training in electrical engineering, I wanted to study the social aspects of computing.

As I became more familiar with the field, I realized that the vast majority of computer histories are set in the United States and that regions such as Latin America did not have a presence in historical studies of computing. I imagined that interesting things had to have happened in Latin America, and when I started digging around, I found a reference to the Cybersyn Project in a footnote. The Cybersyn story shows that Latin American countries do have very interesting and innovative experiences with computer technology and that these experiences are quite different from those of the United States. This story also gives a different reading of the Allende period. Allende was often criticized for being against technology, but he supported this innovative technological project and even sat in the futuristic operations room.

LIU: How have areas like Latin America made important contributions to the way we see the social role of computing technologies?

E.M.: Latin America is a wonderful setting for studying the relationship between technology and politics. In the 1960s computers were expensive mainframes. Their importation was often tied up with the politics of foreign aid agreements and the presence of multinational corporations. At times Latin American nations tried to imitate how nations such as the United States, Britain, and France used computer technology. But computers also became sites of resistance. Latin American nations have used them as vehicles for demonstrating national autonomy, alternative visions of modernity, and the success of different political and economic programs. Studying these controversies helps us see that even something we view as very technical, like a computer, is also a social object.

LIU: Did the destruction of Cybersyn cause Chile to take a step backward in the area of technology?

E.M.: Everything changed when General Augusto Pinochet came to power. The dictatorship destroyed the Cybersyn system, and truthfully having a centralized system to run the economy no longer made sense. The Pinochet dictatorship introduced a number of neoliberal shock treatments in the 1970s and 1980s and, as a result, the market regulated the Chilean economy, not the state. Also, computer technology changed. In the 1970s it shifted from very expensive mainframes to micro computers, and we know the story from there ... This led to smaller and smaller personal computers and laptops, plus the rise of computer networking and later the Internet. So the destruction of Cybersyn did not cause Chile to take a step backward, technologically speaking, but the military coup did cut short an alternative trajectory for computer networking and electronic

governance.

LIU: In general, how can technology be used to understand historical processes, and why is this important?

E.M.: Here is an example. In historical studies of the Allende period, we often read about decisions that were made and the people that were involved, but we often don't think about the infrastructure that made these decisions possible or that brought these individuals into contact with one another. Technological systems often form a key part of infrastructure, yet from a historical perspective they often fade into the background. In October 1972, there was a major truck drivers' strike that tried to overthrow the government. How did the government survive? In part they survived because they had already built a nationwide telex network that allowed them to learn which roads were blocked, which truck drivers were loyal to the government, where spare tires were located ... Having that system in place gave the government options it wouldn't have had otherwise and helped shape an event that is widely acknowledged as a watershed moment for the Allende administration. Sometimes I refer to technological systems as the "mechanisms of history." It's a bit of an overstatement, but it does make the point that technologies make certain actions possible.

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