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Connections

Korea's High-Tech Utopia, Where Everything Is Observed

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IMAGINE public recycling bins that use radio-frequency identification technology to credit recyclers every time they toss in a bottle; pressure-sensitive floors in the homes of older people that can detect the impact of a fall and immediately contact help; cellphones that store health records and can be used to pay for prescriptions.

These are among the services dreamed up by industrial-design students at California State University, Long Beach, for possible use in New Songdo City, a large "ubiquitous city" being built in South Korea.

A ubiquitous city is where all major information systems (residential, medical, business, governmental and the like) share data, and computers are built into the houses, streets and office buildings. New Songdo, located on a man-made island of nearly 1,500 acres off the Incheon coast about 40 miles from Seoul, is rising from the ground up as a U-city.

Although there are other U-city efforts in South Korea, officials see New Songdo as one apart. "New Songdo will be the first to fully adapt the U-city concept, not only in Korea but in the world," said Mike An via an e-mail message. Mr. An is the chief project manager of the Incheon Free Economic Zone Authority, the government agency overseeing the project.

In the West, ubiquitous computing is a controversial idea that raises privacy concerns and the specter of a surveillance society. (They'll know whether I recycled my Coke bottle?!) But in Asia the concept is viewed as an opportunity to show off technological prowess and attract foreign investment.

"Korea has gathered the world's attention with its CDMA and mobile technologies," Mr. An wrote, referring to digital cellular standards. "Now we need to prepare ourselves for the next market," which he said was radio-frequency identification, or [RFID](#), and for U-cities. South Korea's Ministry of Information and Communication has earmarked \$297 million to build an RFID research center in New Songdo.

Fulfilling this ambition, to a large degree, resides with John Kim, a 35-year-old Korean-American who leads New Songdo's U-city planning. Mr. Kim is vice president for strategy at New Songdo City Development, a joint venture of the Gale Company, an American developer, and POSCO E&C, a subsidiary of South Korea's giant steel company.

Mr. Kim, formerly a design leader at [Yahoo](#), said the city's high-tech infrastructure will be a giant test bed for new technologies, and the city itself will exemplify a digital way of life, what he calls "U-life."

"U-life will become its own brand, its own lifestyle," Mr. Kim said. It all starts with a resident's smart-card house key. "The same key can be used to get on the subway, pay a parking meter, see a movie, borrow a free public bicycle and so on. It'll be anonymous, won't be linked to your identity, and if lost you can quickly cancel the card and reset your door lock."

Residents will enjoy "full videoconferencing calls between neighbors, video on demand and wireless access to their digital content and property from anywhere in Songdo," he said.

Whether it lives up to its billing as an exportable city of the future - its critics fear another planned-city disappointment like Brazil's capital, Brasília - New Songdo will most likely be a chance to study the large-scale use of RFID, smart cards and sensor-based devices even as Western societies lag in this next wave of computing.

"There are really no comparable comprehensive frameworks for ubiquitous computing," said Anthony Townsend, a research director at the Institute for the Future in Palo Alto, Calif., and a former Fulbright scholar in Seoul. "U-city is a uniquely Korean idea."

New Songdo, a free-enterprise zone where English will be the lingua franca, is often called the largest private real-estate development in the world. When completed in 2014, it is estimated that this \$25 billion project will be home to 65,000 people and that 300,000 will work there. Amenities will include an aquarium, golf course, American-managed hospital and preparatory schools, a central park (like New York's), a system of

canals (like Venice's) and pocket parks (like Savannah's), a self-described patchwork of elements gleaned from other cities.

People from Seoul and other crowded South Korean cities are already applying for apartments, and planners are counting on luring attractive businesses.

The technology infrastructure will be built and managed by Songdo U-Life, a partnership of New Songdo City Development and the South Korean network integrator LG CNS, which is recruiting foreign information-technology companies as partners.

"This is a profit-generating model, unlike other U-city projects," Mr. Kim said. "Songdo U-Life will charge building owners for facilities management and act as a gateway to services. Our partners will test market services that require, say, wireless data access everywhere or a common ID system, without having to build anything themselves."

More philosophically, "New Songdo sounds like it will be one big Petri dish for understanding how people want to use technology," said B. J. Fogg, the director of the Persuasive Technology Lab at Stanford University.

If so, it is an experiment much easier to do in Asia than in the West.

"Much of this technology was developed in U.S. research labs, but there are fewer social and regulatory obstacles to implementing them in Korea," said Mr. Townsend, who consulted on Seoul's own U-city plan, known as Digital Media City. "There is an historical expectation of less privacy. Korea is willing to put off the hard questions to take the early lead and set standards."

Two things Mr. Kim insists on are that U-life will not be used to test "junk" and that the digital services will be designed around people's needs rather than around the technology. "We'll be doing marketing and ethnographic research, digging deeper," he said. As part of that research, Mr. Kim asked the Cal State students to submit ideas for U-life.

While New Songdo's publicity material states that it seeks to avoid the "stressful flaws that compromise" existing cities, Mr. Townsend says he doubts that it will be able to emulate the creative energy of, say, Seoul. "Will it really be a place where people want to experiment?" he asked.

South Korea perceives an economic imperative in the answer. "Korea has a very strong I.T. industry, but our other economic sectors are not so good," said Geunho Lee, a

senior research fellow at the Korea U-City Forum, a public-private group involved in supporting U-city projects across the country. "We need to test the business validity of these services in order to generate new value and economic growth."

The ability to do such vast market testing is enviable, said Dr. Fogg, of Stanford. "This is a competitive advantage for the Koreans," he said. "They will know before anyone else what flies."

"But I foresee that many services will fail," he added. "That's the nature of experimentation. They should be prepared for the frailties of human nature to emerge."