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Smart living in Hong Kong

New technology could pave the way for world's first cashless society, writes Shobha Nihalani.

Shobha Nihalani
Update on 12 Jan 2008

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Hong Kong may not be regarded as a centre for information technology, but it could position itself as the first cashless society in the world with its extensive use of smart cards in commercial applications.

A smart card is a credit card-sized plastic card embedded with a single integrated circuit (IC) chip. In recent years, smart-card technology has penetrated almost every aspect of our daily lives. More and more companies in retail and transportation are incorporating this technology into their business models. Organisations, in sectors such as banking, transport, telecommunications, access control, credit and debit cards, and government departments, are adopting the cryptographic technology on which smart cards are based.

Security for information, such as credit-card transaction records, private correspondence, company information, identity card numbers, bank accounts and other personal details, is vital and creates an increasing number of IT positions and functionaries not only in the field of engineering, but also in sales, marketing and business development.

Denny Wong Yiu-chu, chairman of Advanced Card Systems Holding, said: "Smart cards represent a good means to enhance the security of using e-commerce. The Hong Kong identity card uses contact-based smart-card technology, and mainland China too has already issued some 800 million second-generation identity cards using contactless technology."

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Andrew Chan says his genuine interest in the field keeps him wanting to learn more.
Photo: May Tse

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Advanced Card Systems Holding develops, manufactures and supplies smart-card readers, smart cards and related security products.

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Mr Wong said the smart-card business grew directly in proportion to the population in Hong Kong and the mainland, and he saw potential for business growth for smart-card technology in commercial areas. "Wherever there are payments to be made, there will be opportunity for the use of smart cards. With smart cards becoming a way of life for Hong Kong people, opportunities are aplenty for IT companies and talent, and there is great potential for smart-card businesses. "Wherever there are payments to be made, eventually, there will be smart cards to replace it," Mr Wong said.

Alan Ho, chairman of Professional Information Security Association, agreed that smart cards were one of the major areas where IT technology came into play.

"We are seeing more use of smart cards in checking a person's identity. For example, student attendance in schools, and as staff cards for physical security control or access in an organisation," Mr Ho said.

The popularity of the Octopus card in Hong Kong presents a good case study. The Octopus is extensively used in public transport systems and for payments in convenience stores, supermarkets and other point-of-sale outlets.

"The industry in the next few years will grow rapidly. The trend is set to continue and vast business opportunities will be opened up," said Donald Cheung, senior manager of corporate communications for Octopus, a leading smart-card technology provider in Hong Kong, which recently secured a project to develop a multipurpose cashless electronic payment smart-card system with the Roads and Transport Authority in Dubai, based on its Hong Kong experience.

"We have more than 1,000 service providers across different businesses, including public transport, parking, retail, vending and kiosks, schools and leisure facilities as well as access control for residential and commercial buildings.

"With the advent of new technologies, we think more innovative applications can be developed to enhance customer convenience using the smart-card technology," Mr Cheung said.

Octopus provides regular training to its service providers in both transport and retail sectors, including frontline staff, to ensure that they know how to operate the smart card system in the most efficient and secure manner.

There is always a shortage of qualified people with IT knowledge and experience with projects.



Advanced Card Systems Ltd.

Mr Wong said that technology companies provided many employment opportunities for engineers in computing and information technology, but they also had to compete with industries such as finance, telecoms, utility, tourism and retail for staff.

"In the past two years, we have never stopped hiring engineers. We have also hired sales and marketing people for our offices in Hong Kong, Shenzhen and Manila in order to cope with the growth of our business," he said, adding that employment opportunities existed in the mainland and Macau as Hong Kong companies continued to expand and send their IT staff to the mainland or Macau to train and manage there.

Mr Ho said that when new technology, such as radio frequency identification technology, became mature and was widely adopted in inventory control and logistics-related applications, a larger IT talent pool would be required to cope with industry growth.

"There is a need for both technical and managerial staff. Technical staff can help the technical implementation and

support. Managerial staff can help with the overall control procedure, policy, IT audit and to develop technical solutions."

Key players

- Chief technical officer
 - Engineering manager
 - Software engineer
 - Field application engineer
 - Sales engineer
 - Product marketing engineer
 - COS Developer
-



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Industry Jargon

- **Cryptography** Computer encryption, or coded messages, are based on the science of cryptography
- **Authentication** the process of identifying digital identity by using codes such as passwords, encryption keys, facial recognition and fingerprint scanners
- **CISSP** Certified Information System Security Professional. A certification that reflects the qualifications of information systems security practitioners
- **ISO 7816** an international standard related to electronic identification cards, especially smart cards, managed jointly by the International Organisation for Standardisation (ISO) and the International Electro technical Commission (IEC)

ALL IN A DAY'S WORK: Maintaining security

Andrew Chan Chor-wing, assistant project manager with Advanced Card Systems, specialises in cryptography and uses his skills and knowledge to popularise smart-card technology and make people's lives easier.

I am 30 years old and have been with my company for four years. I studied computer engineering at the University of Toronto in Canada, specialising in cryptography, which involves the security of ATM cards, computer passwords and electronic commerce. Secured smart cards are about using cryptography to secure sensitive information. Working for a company with a business focus on smart-card technology and doing the work related to my field of interest is a perfect fit.

As a team leader in charge of the company's engineering projects relating to the security of smart-card operating systems, most of my time is spent working with developers to tailor a security system, testing systems to identify security vulnerabilities and programming errors, responding to technical inquiries of clients, and discussing new projects with customers and management of my company.

I have five co-workers in my team and we constantly interact with each other to develop ideas and solve problems. Ensuring the smooth implementation of our smart card system requires much discussion in my team to find out which methods work and which don't. The cryptographic technology, which we developed, allows our customers to deploy a secure logon to computers, e-mails, websites and a diverse number of applications. Therefore, being able to explain to customers how everything ties together in a non-technical way is also important. And this requires a high level of interpersonal and communication skills.

My job is quite desk-bound, except for the time I spend in training sessions and attending meetings with internal staff and customers. I work eight hours a day, and most of the time I sit in front of the computer working on projects. This job requires a high level of competency in information technology. Therefore my company provides me and my co-workers with frequent training, and encourages us to attend seminars and trade shows regularly to keep up-to-date with the latest developments in the industry. Customers will lose confidence in us if we lack knowledge on the subject matter.

Keeping abreast of the latest developments in the industry is crucial. The information security field moves at a fast pace. Every day we hear of new viruses, hacks and vulnerability in all sorts of information systems. Banks and large corporations are increasingly moving towards using more secure, yet user-friendly information systems. Therefore, it is important to have the ability to grasp new information quickly by learning how to apply new technology in commercial areas. Developing products that meet the industry requirements and the needs of clients is the most challenging part of my job.

Working in an international company that sells products to more than 80 countries, I sometimes need to travel abroad to provide training and support to customers.

To be successful in the information technology industry you need to have a keen interest in system security and technological variations. This is a fast-evolving field, and there are always new things to learn. I read a lot of IT magazines and books. Having a lifelong learning drive is important. My interest in this field keeps me motivated and wanting to upgrade my knowledge all the time.