



SINGAPORE Progress Report



Singapore EDI Committee



2006 Country Progress Report : SINGAPORE

SECTION I - GENERAL CONDITION UPDATE

1.1 A Global City at Asia's Crossroad

International businesses, seeking to extend their reach into Asia and the rest of the world, often look to Singapore as a highly preferred base for a successful launch. And executives of multinational corporations readily accept appointments to live and work in the "Garden City".

In Singapore, the pace of commerce is driven by cutting-edge info-communications technology. With direct Internet connectivity to more than 20 countries - at more than 140Mbps to key regional markets such as China, Korea, Japan, Hong Kong, Australia, India and Taiwan, and 4Gbps to the United States - it's one of the most 'connected' city in the world.

Besides having a highly developed technology infrastructure, Singapore is a sophisticated city offering the region's best education, transportation, legal, and lifestyle infrastructure.

Home to a highly educated multilingual workforce, Singapore is renowned for being a business-friendly city, where English is the language of industry, education, and government.

A comfortable and clean city, with some of the most beautiful urban spaces in Asia, this Garden City is also a robust and entrepreneurial island-state, where opportunities abound for corporations and individuals alike.

1.2 A Pro-Business Environment

Singapore's world-class infrastructure, transparent business practices and liberalised telecom market have attracted more than 200 new telecom operators since the telecom and IT markets were liberalised in April 2000.

On top of that, a comprehensive system has been put in place to ensure an open and fair market that promotes both competition and co-operation among telecom players in Singapore.

Public and private sector training programmes sustain one of Asia's most infocomm-savvy workforces. And, some of the world's most flexible immigration laws ensure that businesses can recruit offshore talent when they need it.

Innovation is a way of life in Singapore, thanks to corporate R&D hubs such as Ericsson's Cyberlab, Kent Ridge Digital Labs, and Hewlett-Packard's Mobile e-Services Bazaar.



Singapore nurtures and protects intellectual property. The Intellectual Property Office of Singapore leads a government-wide effort to guard intellectual property rights, and the Writing Down Allowance for Approved Intellectual Properties gives favourable tax concessions for innovations created in Singapore.

Singapore is also a natural test bed for new ideas and products. Its multicultural, multilingual citizens are tech-savvy and internationally recognised as 'early adopters'. Internet, mobile telephone and PC penetration rates are among the highest in the world - half of Singapore's households have Internet access, three-quarters of its population carry mobile phones, and 61% of homes own at least a PC. And hand-held devices of all kinds are commonly used for business and leisure, making Singapore a 'living lab' for wireless technologies.

More than 6,000 multinational companies with regional HQs or operations in Singapore bear testimony to its excellent standing among international business leaders and talent. And no wonder: Few countries in the world can match the stability and integrity of Singapore's political and legal systems.

1.3 A World-Class Infrastructure

Located at the crossroads of Asia, Singapore has long been known as a major financial, Infocomm and transportation hub. More than 6000 MNCs have made Singapore their home in Asia. Many use it as a launch pad to expand into the region. They enjoy the benefits of being a part of a world-class business hub with excellent infrastructure, skilled & IT-savvy workforce, pro-business government policies and a stable environment.

In Singapore, we have more than 21 Tbps of total submarine cable capacity and international and regional telecoms connectivity to more than 100 countries. Complementing this is over 1.0 million square feet of data centre space offering world-class capabilities meeting stringent standards in security, availability and service level quality. It's everything you need for business continuity/disaster recovery, server/data centre consolidation and data storage services.

In an age where global telecommunications demands seamless connectivity and the ability to deliver services across borders, our telecom infrastructure and data centres can provide you the stability, reliability and capacity so critical to your business.

Singapore is well adapted for the Internet age too. Practically every home, school and office in Singapore has access to broadband. Security in electronic commerce is a high priority for the nation and wireless technologies are set to become a cornerstone of the island-state's future.

No matter whether you choose to live, work or do business in Singapore, you can be assured of a technological environment ready for the Infocomm millennia.



SECTION II – EDIFACT/eBXML/XML Based STANDARDS DEVELOPMENT

2.1 Universal Business Language (UBL) 2.0

Work on UBL 2.0 started in early 2005 after UBL 1.0 became an OASIS standard in November 2004. While UBL 1.0 comprises eight business documents for the basic procurement process, UBL 2.0 expands on UBL 1.0 to cover an extended procurement process and the transport process. Altogether, there are close to 30 business documents covered in UBL 2.0. It also contained an expanded library of ABIE and BIE for both the procurement and transport process.

CrimsonLogic chairs the UBL Transport SubCommittee, which produced 7 business documents for UBL 2.0.

Draft UBL 2.0 CD1 was released for first public review in January 2006. Close to 180 comments and feedback was received from the industry. The UBL TC is currently on the final stage of preparing the draft UBL 2.0 CD2 which is expected to be released for a second public review in July 2006. UBL 2.0 is expected to become an OASIS standard in October 2006.

UN/CEFACT has also approved the proposal for UBL to be recognized as appropriate first-generation XML documents for eBusiness and for future version of UBL beyond UBL 2.0 to be done within UN/CEFACT. For this, the UBL TC has already prepared an action plan for UBL's eventual inclusion into UN/CEFACT.

2.2 Information Exchange Technical Committee Seminar

As part of an on-going effort to promote the awareness of XML-based standards, the Information Exchange Technical Committee of the Information Technology Standards Committee organized a half-day seminar on 15 March 2005. It was attended by close to 100 attendees. Topics presented included (1) Empowering Organizational Change with an SOA, (2) ECO and International Standard: ebXML and UBL, (3) Impact of XBRL on Business Reporting and (4) xForms – Putting your form processing on steroids.



SECTION III – eBusiness/eCommerce Related PROJECT UPDATES

3.1 TradeXChange

A new trade and logistics platform, TradeXchange, is expected to go live in October 2007 and will support an estimated 8,000 users from the Singapore trading community. TradeXchange will be a neutral and secure platform that will enable exchange of information between shippers, freight forwarders, carriers and government agencies, to facilitate the flow of goods within, through and out of Singapore. This trade infrastructure will be able to provide seamless inter-connectivity among commercial and regulatory systems for our trade and logistics businesses.

Other than linkage with TradeNet, the electronic trade declaration system that companies use today, TradeXchange will be linked to four critical systems, namely, Cargo Community Network, Jurong Port Online, MPA's Marinet and PortNet, and other commercial systems.

According to Singapore Customs, the TradeNet system will also be further streamlined and simplified in the process, which will result in a significant reduction of trade declaration costs. It is estimated that there will be savings of \$75 million for the entire industry over 10 years.

TradeXchange is being managed by an inter-agency team comprising Singapore Customs, Infocomm Development Authority of Singapore (IDA) and the Economic Development Board (EDB).

Owners of the four critical systems are also brought on board as partners. Once implemented, TradeXchange is expected to serve as a major booster to the competitiveness of our trade and logistics industry and put Singapore another step ahead as the logistic hub for the region.

A 10-year contract to develop and operate TradeXchange has been awarded to CrimsonLogic. Valued at \$6.5 million, the platform is expected to generate about \$200 million for CrimsonLogic over the 10-year period through subscriptions.

According to CrimsonLogic, existing platforms require members of Singapore's trading community to access a number of disparate systems individually and re-enter the same data in order to perform transactions such as submitting import/export permits, sea or air cargo manifests. The new platform, TradeXchange, will be designed to provide a single interface through which users can access these critical systems, enter the required data only once, and conveniently route it to the relevant parties.



Benefits of the system will include greater time savings, eliminate errors through data re-entry and smoothen information flows, resulting in overall efficiency and productivity gains.

In November 2005, Singapore's trade exceeded \$599 billion for the first eleven months of the year.

After TradeNet, TradeXchange marks the next leap in the development of Singapore's trade facilitation framework. As part of the agreement, CrimsonLogic will invest about \$12 million in the first two years of the project's development.

CrimsonLogic also has experience in managing and deploying trade declaration and commercial trade systems for countries such as Canada, Ghana, Mauritius, Saudi Arabia and the United States. As an added advantage, users of TradeXchange will be able to tap on CrimsonLogic's linkages to these overseas customs authorities for cross-border trading.

TradeXchange will be developed on the Java platform and based on a service-oriented architecture. It will also be aligned with global best practices and technical standards including W3C (World Wide Web Consortium), UN/CEFACT (United Nations Centre for Trade Facilitation and Electronic Business), OASIS (Organisation for the Advancement of Structured Information Standards), ebXML and RosettaNet.

3.2 The Convenience Of One Card For Electronic Payments

Singaporeans will soon get to enjoy the ease and convenience of using one card to make seamless electronic payments (e-payment) for their everyday needs - from retail purchases to public transport payments.

This is made possible as a result of a collaboration spearheaded by IDA working closely with the Land Transport Authority (LTA) and the industry. Gazetted and published by SPRING Singapore as SS 518 CEPAS, the other key organisations in this collaboration are the Cards & Personal Identification Technical Committee (CPTIC) under the Singapore IT Standards Committee (ITSC), Network for Electronic Transfers Singapore Pte Ltd (NETS), and EZ-Link Pte Ltd.

The launch of the new Singapore Standard for Contactless ePurse Application, SS 518 CEPAS is a significant milestone. Available for industry use, SS CEPAS is a world's first in creating a nationwide interoperable micro-payment platform that bridges multiple sectors - in particular the transit and retail e-payment space. This standard also levels the playing field for more card issuers such as banks and merchants to participate in this e-payment space.

As infocomm continues to transform all sectors of our economy, e-payments will play a greater role in enabling next generation applications and transactions. The launch of SS CEPAS signifies IDA and industry's commitment to leverage on the e-payment landscape to work towards the goal of reducing the number of paper based transactions and doubling the



annual value of transactions of card-based payments, e-money schemes and mobile payments - from S\$24.6 billion to S\$50 billion by 2010. This will result in market growth and create greater potential for exportable payment services to the region.

Significantly, CEPAS will allow interoperability of multi-purpose stored value card payment schemes such as the NETS CashCard and the ez-link card. When that happens, users can expect to enjoy the convenience of having a single card for making transit, motoring and retail payments instead of having multiple cards for different purposes. On the other hand, merchants and public service providers will also be able to deploy a single reader for their transaction processing, as opposed to having multiple readers.

Commenting on the significance of this development, Mr Chan Yeng Kit, CEO, IDA said, "CEPAS is one of the key pillars of the Next Generation e-Payment infrastructure outlined in iN2015, IDA's ten-year infocomm masterplan. It is a significant 'win-win-win' outcome for consumers, merchants, as well as card issuers. Consumers will be able to use one single card seamlessly for a wide range of payments. In addition, merchants avoid the cost of duplication involved in catering to multiple systems, and card issuers have access to a much larger nation-wide micro-payment space."

Setting the Standard

To ensure CEPAS' high roll-out and mass adoption, IDA has worked closely with CPITC and through SPRING Singapore gazetted the specifications as SS 518.

SPRING Singapore will encourage more enterprises, especially amongst the small and medium enterprises or SMEs, to use this standard.

This is important as Singapore needs to continually invest in electronic payment innovation and foster greater cooperation among the various payment platforms to open more solutions that can be used on a wider national scale. This will help boost market growth and create potential for exportable payment services to the region.

In addition, compared to existing smart cards, CEPAS has a beefed-up security feature to support multiple card issuers.

Mr Lin Yih, Chairman of CPITC said, "Singapore places great emphasis on high security for electronic payments. We have decided to embark on this new standard which is a culmination of atomicity, speed of operation, signed receipt, partial refund, auto-load and cumulative debit."

SPRING Singapore Chief Executive Mr Loh Khum Yean said, "As the national standards body, SPRING is privileged to publish and launch SS 518 CEPAS. This is a pioneering effort for e-Purse solutions, especially in the debit and credit areas because there currently are no



international standards in this area.

"SS 518 CEPAS will benefit both industry and end users - by ensuring a level playing field for card issuers, higher security and more choices of service providers for consumers," Mr Loh added.

Deployment of SS CEPAS compliant cards

For a start, NETS, a key player in the financial sector has plans to roll out CEPAS compliant Combi CashCard for mass market use later this year. Like all CashCards managed by NETS, the CEPAS compliant Combi-CashCard will be jointly issued by local banks such as DBS, OCBC and UOB. Ms Jocelyn Ang, General Manager for CashCard and Financial Transaction Processing, NETS, said, "CEPAS is a specification that enables NETS to offer unmatched convenience for Singaporeans, by allowing a single unified payment system for the public transport, retail and motoring.

"Today, we have the technology and the capability to deliver the next generation of payment solutions. We are enthusiastic and ready to offer a solution which enables users to make payments for road tolls under the ERP framework, pay for public transport or make retail purchases.

In a nutshell, NETS supports a common standard so that consumers will benefit from more payment choices. The contactless capability of the Combi-CashCard would also enable NETS to enter new sectors like Quick Service Merchant outlets where transaction speed is important."

Travelling With Ease

This micro payment platform has received strong support from the industry.

Mr Leong Kwok Weng, Chief Engineer (Systems), LTA said, "LTA is currently developing a new generation IU which would be able to accept other contact-less smartcards besides the existing CashCards, whether these are issued by NETS, EZ-Link or any other card managers. The fare system of the upcoming Circle Line, to be completed in 2010, will also incorporate this new standard, while existing transit card readers will be changed to accept multiple card types issued by multiple card issuers over time."

EZ-Link is working with LTA and its partner QB on the adoption of SS CEPAS onto its existing system to allow the ez-link card scheme to be integrated into other market sectors such as ERP tolls and car parking. A single standard would, as a result, also give ez-link cardholders access to an even wider range of unparalleled benefits and offerings in the retail sector in general.



EZ-Link's Senior Vice President (Business and Technology) Mr Nicholas Lee said, "EZ-Link and QB strongly support the Singapore government's initiative to introduce the CEPAS standard. With the convergence of the different card schemes onto a common platform, the biggest winner will be the consumer, who gains not only convenience but also choice.

We look forward to the successful nationwide implementation of the CEPAS platform as it will provide ez-link cardholders hassle-free and seamless access to a variety of payment and non-payment services across all e-payment facilities. The resulting increase in ez-link card usage by consumers for their everyday transportation, shopping and motoring needs would naturally encourage more merchants to accept e-payments as their preferred means of settlement."

With the launch of SS CEPAS, Singapore's Infocomm industry sets another significant milestone to ensure that our nation stays at the forefront of innovation in the e-payment market space. Moving forward, IDA and its partners will continue to work together to provide consumers new and innovative e-payment solutions of the future.

3.3 Singapore iN2015 Masterplan Offers a Digital Future for Everyone

Singapore has launched a new ten-year infocomm masterplan that will propel the nation into 2015 and beyond, with a line-up of activities and goals that spell benefits for the people, businesses and the global community. The vision is to turn the country into an Intelligent Nation and Global City, powered by infocomm. The masterplan recommends the way forward for Singapore, into a future where infocomm will bring a sea change and become intrinsic in the way people live, learn, work and play.

Minister for Information, Communications and the Arts Dr Lee Boon Yang unveiled the plan this morning at the start of the week-long Infocomm and Media Business Exchange (imbX). Dr Lee said: "Innovation, integration and internationalisation will be the basis of our masterplan. The capacity to innovate and create new business models, solutions and services will enable Singapore to be more competitive in a globalised environment. Equally important is the ability to integrate resources and capabilities for economic progress and digital opportunities for all Singaporeans."

The iN2015 masterplan is developed in the past year with inputs from the People, Private and Public sectors. A steering committee chaired by IDA with representatives from the infocomm industry, sectors like education, healthcare, manufacturing & logistics, finance, tourism & retail and digital media, as well as the government, guided the development. The masterplan sets bold targets for 2015:



- Singapore to be No. 1 in the world in harnessing infocomm to add value to the economy and society
- Achieve a two-fold increase in value-added¹ of the infocomm industry to S\$26 billion
- See a three-fold increase in infocomm export revenue to S\$60 billion
- Create 80,000 additional jobs²
- Have at least 90 per cent of homes using broadband
- Ensure 100 per cent computer ownership for all homes with school-going children

"The iN2015 Masterplan is not only about economic competitiveness. We will also be exploring ways to ensure that the elderly, less-privileged and people with disability can also enjoy connected and enriched lives for self-improvement and life-long learning. This is to bridge the digital divide and create opportunities for all," said Dr Lee.

To achieve the targets, the masterplan outlined four key strategies:

- To spearhead the transformation of key economic sectors, government and society through more sophisticated and innovative use of infocomm
- To establish an ultra-high speed, pervasive, intelligent and trusted infocomm infrastructure
- To develop a globally competitive infocomm industry
- To develop an infocomm-savvy workforce and globally competitive infocomm manpower

In harnessing infocomm technologies for the key economic sectors, some key recommendations include the use of personalised services to enhance healthcare, education, tourism and e-government; seamless delivery of financial services and supply-chain management.

The Next Generation National Infocomm Infrastructure will be put in place by 2012, capable of delivering broadband speeds up to 1 Gbps, and offer pervasive connectivity around the country. The infrastructure will also be IPv6 compliant and will enable an exciting host of new broadband-enabled services and applications, such as immersive learning experiences, telemedicine, high definition TV, immersive video conferencing and grid computing.

To develop a globally competitive infocomm industry, initiatives are being worked out to strengthen the domain and technology capabilities within the industry. Local infocomm enterprises will be nurtured for expansion and growth beyond the domestic markets, and infocomm solutions developed for export.



To support the growth of the economy and the infocomm industry, the infocomm competencies of the general workforce will be raised. Techno-strategists who have both the technical and business expertise will also be groomed to achieve business and organisational goals through the strategic and innovative use of infocomm. To build a pipeline of infocomm professionals, there will be initiatives to attract the best from schools to take up infocomm as a career.

"The government together with the industry will pursue many of the recommendations from the iN2015 Steering Committee for Singapore's vision to be an intelligent nation and global city by 2015," said Mr Chan Yeng Kit, Chief Executive Officer of IDA Singapore. "IDA sees the iN2015 masterplan as a living plan that will evolve as we look into its implementation and respond to socio-economic and technology changes over the next 10 years," he added.