iN2015< IMAGINE YOUR WORLD

ENHANCING SERVICE, ENRICHING EXPERIENCE, DIFFERENTIATING SINGAPORE

Report by the iN2015
Tourism, Hospitality and Retail
Sub-Committee

Singapore: An Intelligent Nation, a Global City,
powered by Infocomm

Contents

Preface

The Tourism, Hospitality and Retail sector in Singapore looks set to become even more exciting in the coming years ahead. Current efforts to build new attractions, rejuvenate Orchard Road, and transform service level in the sector will put Singapore in an excellent position to tap into the rapid growth of the global tourism market.

Indeed, the Tourism, Hospitality and Retail Sub-Committee is excited about the potential of the sector, and the opportunity to define new ways that leverage on infocomm to further entrench Singapore's attractiveness as a travel and shopping destination of choice.
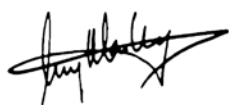
In a high-touch service industry like ours, infocomm can be exploited to create new ways of fulfilling the needs of our visitors and customers, thereby enhancing their experience here. It can also be used to improve the efficiency of the companies and operators in the sector, raising overall competitiveness.

Customer expectations are changing with the times. In the information age, many are accustomed to or even expect to have information at their finger-tips and services customised to their needs. Such needs are even greater when they are away from home. Technology can be leveraged to help provide that differentiated or even unique experience to all when they visit Singapore.

In the area of efficiency improvement, besides assisting companies to become more productive, infocomm can, more importantly, link up companies with one another, bringing benefits to all players in the ecosystem.

Singapore's tourism and retail landscape will evolve with the external environment. The industry, too, needs to ride the change and continually differentiate ourselves. Similarly, technology is evolving at a rapid pace. The transformation of the Tourism, Hospitality and Retail sector through infocomm is thus an ongoing process, requiring the Government to work in partnership with the industry to exploit opportunities and meet new challenges. This report is an excellent example of what can emerge from such close collaboration, and the Sub-Committee recommends that the Government and the industry continue to engage in dialogue in future.

Ms Leong Wai Leng
Chairman
iN2015 Tourism, Hospitality and Retail Sub-Committee

iN2015 Tourism, Hospitality and Retail Sub-Committee

Name	Designation
Ms Leong Wai Leng (Chairman)	Deputy Chief Executive Officer Raffles Holdings Ltd *Concurrently* Chief Executive Officer Raffles International Ltd *(until 31 October 2005)*
Mr Ng Wai Choong (Deputy Chairman)	Deputy Secretary Industry Ministry of Trade & Industry
Mr Paul Beh	President, Asia Pacific Reed Exhibitions Pte Ltd
Ms Margaret Heng	Divisional Director Singapore Hotel Association
Mr Robert Khoo	Chief Executive National Association of Travel Agents Singapore (NATAS)
Mr Edwin Low	Chief Financial Officer Sentosa Development Corporation
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Mr Tan Eng Pheng	Director Manufacturing & Services Cluster Infocomm Development Authority of Singapore
Mr James Tan	Director Resource Development Singapore Tourism Board
Mrs Janet Tan-Collis	Chief Executive Officer East West Executive Travellers Pte Ltd

Executive Summary

The Tourism, Hospitality and Retail (THR) sector is a high-touch sector that is focused on delivering quality service and providing a delightful experience to its customer. For Singapore to compete successfully, we need to provide a unique and personal experience for every visitor or customer, where he will get to enjoy premium services that are tailored to his needs. It is about making everyone feel special.

Infocomm can support the sector to deliver personalised and superior service to the visitor or customer in a cost effective manner. It also helps to reduce, if not eliminate, mundane and routine tasks, allowing service staff to focus on improving the visitor's or customer's experience. With technology, such as Customer Relationship Management solutions, businesses can better anticipate and meet their customers' needs.

Infocomm also helps to enhance the competitiveness of the sector by creating new business models and services for the THR sector to meet the changing needs of visitors and shoppers. For instance, using the Internet, tourism service providers like small hotels and budget airlines can reach out to customers in a more efficient and effective way, enabling them to save cost and increase the number of customers. Retailers can also use technology to integrate their supply chains and enhance productivity.

The iN2015 THR plan aims to leverage on infocomm to help improve experience for visitors to Singapore, and enhance the growth and competitiveness of the THR sector. This will be achieved through the following programmes.

Digital Concierge – This aims to give every visitor his "own concierge" service, with access to information anywhere, anytime. It will anticipate the visitor's needs and provide personalised premium services to him. For example, he will receive location-based information of his favourite retail stores, get suggestions on the places to visit, and transact for services while on the move, helping him optimise the limited time that he has in Singapore.

EnAbling Speedy rEgistration (EASE) for Visitors – This will provide visitors with a hassle-free and seamless experience by presenting only one point of registration and integrating providers along the value chain, such as airport, hotels and conference organisers, getting visitors from the airport arrival gate to their hotel rooms in 30 minutes.

Technology Adoption Programme (TAP) – Technology can help companies be more efficient and deliver better services. Companies in the THR sector will be encouraged to make better use of infocomm through education, skills development and other incentives.

Supply Chain Integration – Productivity along the retail supply chain will be raised by increasing collaboration and linkages across supply chains not only within Singapore, but also internationally, as retailers expand into regional markets. For the tourism value chain, efforts will be made to achieve greater inter-operability amongst the players.

Infocomm-themed Attractions – In the longer term, to make Singapore a more compelling travel destination, infocomm can also be used to create new attractions to attract new customers.

Through these programmes, infocomm can be a strategic enabler that will help differentiate Singapore as a travel and retail destination of choice.

CHAPTER 1
IN 2015 — MAKING EVERY VISITOR FEEL SPECIAL

Entrepreneur Mr. A.K. Lee grinned with satisfaction. In a month's time, he would be meeting his clients from around the world in one of his favourite cities, Singapore, at a conference he was looking forward to.

This would be a special trip, as his wife was coming with him too. He was anxious to show her the sights. Besides reserving a room at his favourite hotel, he had booked several tours and secured tickets for a big musical starring that famous actor his wife liked so much.

When his secretary came back from lunch, he would tell her she had lost her bet that he would not be able to do it himself. He would also inform her that it had taken him a mere 15 minutes.

It had been amazingly easy. All he had to do was go on the VisitSingapore website. The tour recommendations there had been intriguing and he felt as though it was his personal travel agent helping him with the itinerary and reservations.

He smirked as he thought of his wife's reaction when she read the details of the trip he was sending to her mobile device.

In Singapore, he was all smiles when they got to their hotel room. "Told you it would be easy," he said to her.

They had breezed through immigration, collected their luggage and reached their hotel within 30 minutes of landing. Checking in at the hotel had been hassle-free too. There were no forms to fill and no need to wait. All he had to do was scan his palm at his room door.

He looked around the room. It was prepared exactly as he had requested. He and his wife's favourite magazines were next to his favourite fruits and beverages.

Ah, the latest conference material was ready for downloading from the hotel network into his laptop.

He checked that he had access to his Digital Concierge. This service would help him keep track of his business appointments, recommend the places where he could get his favourite dishes, and make reservations to boot. Having been in Singapore before, he knew he could also depend on it to help him navigate the city.

Wait till his wife experienced what the Digital Concerige can do. She was not good with English, so he was glad she could use it in their native language. Mrs. Lee was suitably amazed over the next few days as she explored the city, sometimes with her husband and sometimes on her own. Getting around was easy as the Digital Concierge service presented her with information she needed at the time she wanted it. It was like having her own personal tour guide in her hand.

When she visited one of the city's museums, she appreciated the historical significance of the artefacts after listening to the running commentary from her mobile device while she strolled through the exhibition. And she would never have thought of going into that museum, if the Digital Concierge had not alerted her while she was passing by. She could easily find out about the city's sights and activities using the service.
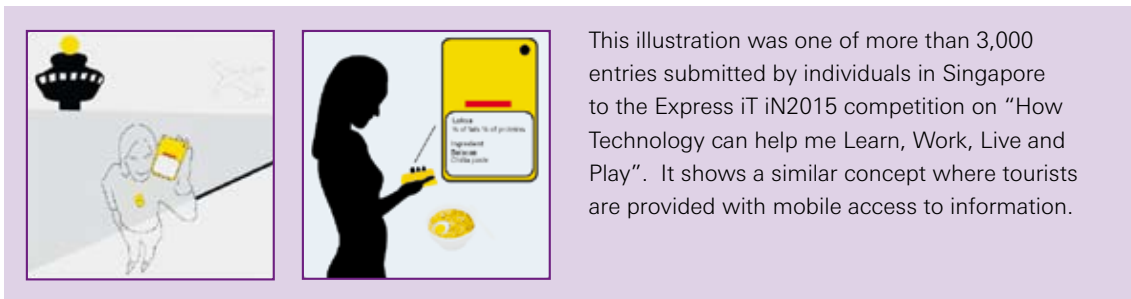
This illustration was one of more than 3,000 entries submitted by individuals in Singapore to the Express iT iN2015 competition on "How Technology can help me Learn, Work, Live and Play". It shows a similar concept where tourists are provided with mobile access to information.

Figure 1-1: An illustration submitted by Lin Jiayi, 19 years old, Nanyang Polytechnic

The part she liked best though was the guidance she got while exploring Orchard Road. If not for her Digital Concierge, she would never have known about the shop which sold extra wide shoes, or the sale at the tea shop. She felt like she had her own personal shopping assistant, telling her about her favourite stores nearby.

She was determined to come back soon, this time with her friends. They will be quite taken with the idea of travelling to Singapore she was sure, especially after she shows them her photos and after they read about her experiences on her personal page at the VisitSingapore website.

They will feel pampered here, she thought.

Behind the seamless and personalised experience that Mr. and Mrs. Lee enjoyed in Singapore, is a country that is well-equipped with next-generation infocomm infrastructure, and a sector that is well-served by technology. The Tourism, Hospitality and Retail (THR) sector will make strategic use of infocomm to raise its efficiency and generate new business opportunities. The industry will be a well-integrated one, where players along the supply chain are closely linked by technology, and information and data are shared seamlessly from one player to another. Many mundane and routine processes will be automated, hence freeing up limited manpower resource to be deployed in more productive areas. The THR sector will be more efficient and productive, and will focus on providing the best value and service to their customers.

The iN2015 goal for the THR sector is to use infocomm to differentiate Singapore as a Leading Travel Destination, where every visitor feels that he has received special treatment. Infocomm can never replace the need for human interaction in this sector. However, it is precisely because of the human nature of this sector, that infocomm can play a key role, not only in helping to provide unique and premium service to each customer, but also in freeing up service staff's time from mundane and routine tasks, and enabling them to focus on improving the visitors' experience.

Personal 'Intelligent Travel Agent'

- Everything that we need, arranged easily and quickly.

Hassle-free Experience

- From airport to hotel in 30 minutes

- No need to check-in, and our room is customised to our likes.

Getting Around is Easy

- Our mobile 'Shopping Guide' provides location-specific shopping recommendations and special offers.

- Our hand-held 'Tour Guide' narrates directions, tourist information and alerts us of nearby attractions.
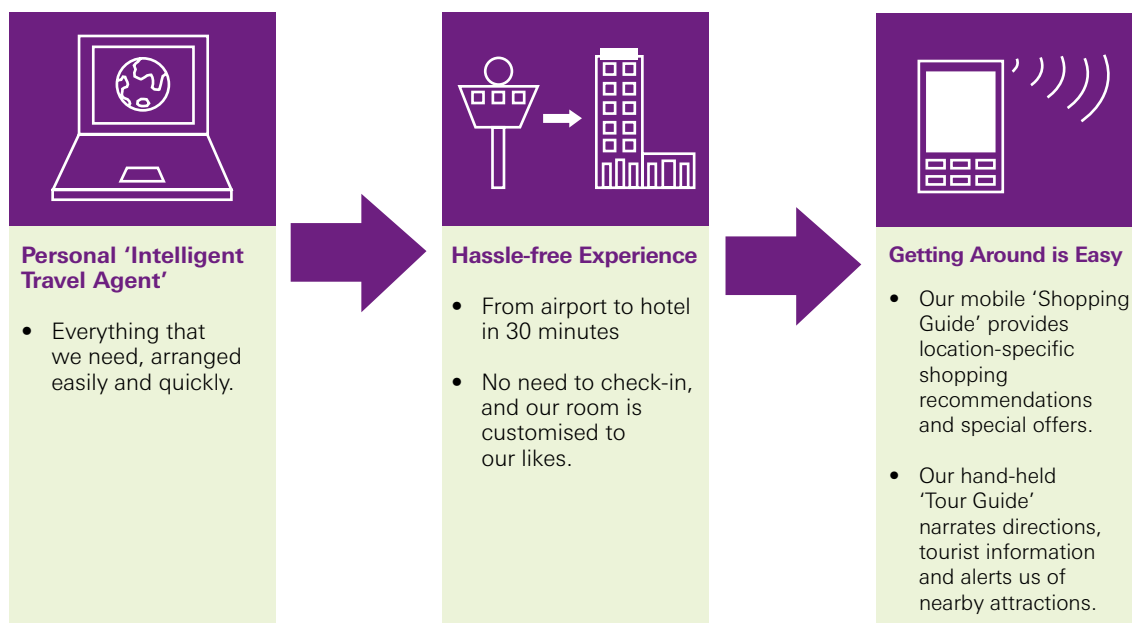
Figure 1-2: Tourist Experience in 2015

CHAPTER 2
BACKGROUND

Overview of Sector

In 2005, the tourism and hospitality industry generated S$10.8 billion in tourism receipts, and had about 150,000 people working in the sector. There were 8.94 million visitor arrivals[1]. The retail industry generated S$28.8 billion in operating receipts and employed a total of 94,000 workers[2].

In total, the THR sector was estimated to account for about 10 per cent of total employment, and was responsible for around five per cent of the GDP.

Compared to the nation's other key service sectors, THR is dominated by many small and medium enterprises (SMEs) some of whom operate with low levels of productivity. The productivity of local SMEs is about half that of the local large enterprises[3].

Generally, the adoption of infocomm in this sector is low. There could be a few reasons for this. A 2005 survey of the Singapore tourism industry[4] revealed that this could be due to the affordability of technology and the companies' lack of knowledge on how to use it. The sector also has a large proportion of SMEs, which tend to put lower priority on infocomm use. Finally, because THR is a service industry, the emphasis will be on providing good customer service, and technology may be viewed as less important.

In areas where infocomm is used, the benefits are clear. For example, through electronic reservations and ticketing, airlines enjoy significant cost savings. A paper airline ticket costs about US$10 to process, while an e-ticket will cost US$1. This means that e-ticketing can save the industry up to US$3 billion a year in costs[5]. Retailers too enjoy cost savings when they use infocomm along their supply chains. The US-headquartered World Wide Retail Exchange (WWRE), currently comprising of over 230 member retailers and suppliers from around the world with combined revenue of over US$900 billion, has saved its members over US$2 billion on more than US$12 billion transacted through its business-to-business platform[6].

These show that turning to technology can help even where service is key. Indeed, infusing the sector with technology is becoming more vital because of the following trends.

Sectoral Trends and Implications

Growth in the Worldwide Tourism Industry

With rising affluence (particularly in populous countries like China and India), an increasingly global business environment leading to increased cross-border travel, and the proliferation of low-cost carriers, a boom is expected in the world's tourism industry.

The UN World Tourism Organization predicts there will be 1 billion visitor arrivals by 2010[7], and Asia is projected to be the second largest receiving region after Europe, and the fastest growing one for travellers. By 2016, tourism will generate US$12 trillion of economic activity and contribute 279 million jobs[8].

Cities in the region like Hong Kong, Shanghai, Kuala Lumpur and Bangkok are gearing themselves up to tap into this growing market, resulting in even more intense competition for the tourist dollar.

To see its fair share, Singapore will need to offer travellers a compelling reason to visit the island, whether as a tourist, a business traveller, a patient seeking medical care or a student attending an educational institution.

While tourism is ultimately a service industry, infocomm can enable Singapore to differentiate itself in several ways. This includes reaching out to a wider customer base, improving the richness of the marketing content, increasing a visitor's access to information and facilitating his transactions before and during his visit.

More Business Travellers

The Business Travel, Meetings, Incentive Travel, Conventions and Exhibitions (BTMICE) segment is an important one. Business travellers are high spenders that contribute more tourism receipts than their share of the total visitor arrivals.

1   Singapore Tourism Board (STB), January 2006
2   "Economic Survey Series 2003 - Retail Trade", Singapore Department of Statistics, July 2005
3   SPRING Singapore, April 2006
4   "Technology Survey in Tourism Industry 2005", STB & IDA, December 2005
5   International Air Transport Association
6   Worldwide Retail Exchange, October 2005
7   "Tourism 2020 Vision", UN World Tourism Organization, 2001
8   "World Report, Travel & Tourism Climbing To New Heights, The 2006 Travel & Tourism Research", World Travel & Tourism Council, 2006

Image courtesy of the Singapore Tourism Board

In 2005, BTMICE visitors made up 25 per cent of the total visitor arrivals in Singapore and were responsible for 30 per cent of tourism receipts. Singapore was also named Asia's top convention city by the International Congress and Convention Association and the Union of International Associations, and voted the "Best Business City in the World" by readers of the Business Traveller Asia-Pacific magazine.

The BTMICE industry here is projected to grow at an average rate of 15 per cent annually over the next 10 years, and contribute 35 per cent of the total tourism receipts by 2015.

Business travellers are generally more amenable to the use of technology, which helps them to be more productive and efficient. As Singapore strives to be the leading convention and exhibition city in Asia, we can leverage on infocomm to make the business visitors' trips more productive and convenient.

Expectation for Better and More Personalised Service

Service standards have significant impact on the THR sector, where service quality significantly influences the customer's experience in Singapore. On the demand side, customers have become more discerning. They are more sophisticated, experienced and have higher expectations – demanding better and faster service, and for the best services and products to be marketed, sold and delivered to them in the way that is relevant to them.

All these mean that there will be a need to identify and understand customer segments and cater to their specific needs in a personalised way. Technology can help service providers to deliver more personalised services. Systems like customer relationship management, decision support and automation, can help service providers deliver better service quality.

Consolidation and Expansion in the Retail Mass Market

While the THR sector is expected to grow larger in the future, there is also increasing competition brought about by consolidation, particularly within the retail industry.

In Singapore, due to the small domestic market, retailers that want to gain a bigger share of the market are looking at extending their reach in the local market. This includes cross sector collaboration, such as the alliance between NTUC FairPrice and ExxonMobil, which will see NTUC FairPrice manage and operate all 77 ExxonMobil service stations and convenience stores in Singapore. Another example is the increase in product offerings of retail stores to make shopping a more convenient and one-stop experience for the customers.

At the same time, local retailers have been pursuing regionalisation efforts to tap into high growth markets. This includes Sheng Siong Supermarket's initiative to expand into Malaysia and NTUC FairPrice's goal to establish supermarkets in China and India.

Extending reach in the local market and regionalisation require companies to have extremely efficient and flexible supply chains, not only within the countries that they operate in, but also across different borders. In fact, as margins for retailers continue to be squeezed, only those that are very efficient will survive and thrive.

Improvements Brought About by Technology

Disruptive Nature of the Internet

The tourism industry leads in the adoption of e-commerce in the Business-to-Consumer (B2C) arena. More and more people are turning to the Internet to make their travel purchase. In 2005, 79 million Americans, or almost 40 per cent of the adult US population, used the Internet to look for travel or destination information, out of which 82 per cent booked their travel online[9]. In Europe, European online travel sales increased by 44 per cent between 2002 and 2003 to reach US$14 billion[10].

The Internet has also fundamentally changed travel distribution and marketing. The emergence of giant online travel agents like Expedia and Travelocity altered the intermediary landscape and created new business models. These companies leverage on the fact that the Internet provides a cost-effective platform for information to reach out to a large group of geographically dispersed customers. Multimedia technology also allows for greater richness of information relating to destinations, hotels and activities, making the search process for tourism products more exciting. The re-intermediation brought about by the Internet has displaced some of the traditional players in this space.

The Internet also levelled the playing field for the players in the market as small operators, such as small hotels and attractions, can now have direct access to potential customers and need not rely on re-sellers or tour agents.

In the tourism market, products (such as hotel rooms and air tickets) are perishables, for example, an unsold hotel bed represents lost income. The Internet allows hotels, airlines and other operators to capture revenue at the last minute for these perishables, either through aggregators like Expedia or through their own direct channels to their customers.

These examples demonstrate the need to constantly anticipate the implications of technology as new business models can develop to potentially threaten tried and tested methods.

Ubiquitous Access to Information

While there is now a wealth of online information for planning and booking a trip, the offerings are limited while a person is on the road.

Companies and cities have experimented with technologies such as wireless broadband and location-based services to provide information. For example, people on the go can get maps, directions and more, from services like the mobile version of Google Local, available in the US. In the 2006 World Cup competition in Germany, Servingo will provide a personalised portal to fans with information such as where to go, what to eat, and teams' practices and games times. The service, available on mobile phones, PDAs or laptops, also helps visitors to make hotel reservations.

The number of cell phone users can only increase in the future. As mobile technology (e.g. location based services, mobile payments) matures, there will be significant opportunities to explore how service providers can deliver products and services to their users anytime, anywhere.

Solutions to Improve Supply Chain Efficiencies

In retail, several major retailers in Singapore have adopted the CPFR (Collaborative Planning, Forecasting and Replenishment) best practice by leveraging on infocomm to exchange stock and sales data with their major suppliers, resulting in better inventory management. Similarly, a few leading supermarket chains here have started deploying RFID (Radio Frequency Identification) within their warehousing and distribution environments, to improve the tracking of physical goods flow and reduce inventory holdings, as can be seen from Wal-Mart's experiences[11].

These initiatives have chain effects. When fully implemented, they will impact more than 1,000 suppliers in Singapore and result in higher infocomm penetration amongst them.

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9   Travel Industry Association of America, Nov 2005; CIA – The World Fact Book, 2005
10   Information source: Danish Centre for Regional & Tourism Research
11   Wal-Mart, the largest retail store in the US, implemented CPFR efforts with its initial 1300 suppliers and achieved the following results: in-stock rates improved by 7.85 per cent, weeks of supply shrank by 5.3 per cent and inventory turns increased 3.72 per cent. The more active moderate suppliers who exchanged more than 100 collaborative messages achieved an average of 96.97 per cent in-stock. The less active who exchanged fewer than 100 collaborative messages achieved in-stock rates of 93.87 per cent. Similarly, Wal-Mart's RFID efforts had led to a 16 per cent reduction of out-of-stock products and faster shelf replenishment of those items over items tracked via bar codes at the case level.

CHAPTER 3
GOAL, STRATEGIES AND PROGRAMMES

iN2015 Goal and Desired Outcomes

The iN2015 goal for the THR sector is:

Using infocomm to transform the Tourism and Retail sector, differentiating Singapore as a Leading Travel Destination.

Through the use of technology, Singapore can offer the visitor a more personal experience. **Each visitor will feel like he is enjoying premium service in Singapore, where his unique needs and likes are catered to in detail.** Singapore can thus differentiate herself from other destinations, attracting visitors from the BTMICE, leisure, healthcare and education segments. This is supported by an integrated, efficient and competitive industry that allows its players to focus on better service delivery.

The outcomes that will be realised through this goal are:

- A superior experience for visitors to Singapore; and

- Enhanced growth and competitiveness of the THR sector.

These will contribute to STB's goals for the tourism industry – to triple tourism receipts to S$30 billion; double visitor arrivals to 17 million; and create 100,000 additional tourism related jobs by 2015.

These outcomes will also contribute towards SPRING Singapore's goal in the Retail21 plan, which is to improve the overall productivity of the retail industry.

Strategies

Three strategies are proposed to help the sector achieve the iN2015 goal.

Goal	Using infocomm to transform the Tourism and Retail sector, differentiating Singapore as a Leading Travel Destination		
Outcomes	A superior experience for visitors to Singapore using infocomm		Enhanced growth and competitiveness of the THR sector using infocomm
Strategic Thrusts	Create seamless and personalised services for visitors	Improve industry efficiency	Extend to new areas
Programmes	• Digital Concierge for Visitors • EnAbling Speedy rEgistration (EASE) for Visitors	• Technology Adoption Programme (TAP) • Supply Chain Integration	• Infocomm-themed Attractions

iN2015 Tourism, Hospitality and Retail Goal:
Using infocomm to transform the tourism and retail sector, differentiating Singapore as a leading travel destination

Create Seamless & Personalised Services for Visitors

CONCERTS
DINING

Integrated & personalised

Location-aware

Anytime, anywhere

Digital Concierge

One-stop registration, seamless & hassle-free experience

CONFERENCE

Enabling Speedy Registration

A superior experience for visitors to Singapore; Enhanced growth and competitiveness of THR Sector

Improve Industry Efficiency

Increased productivity

Technology Adoption

SHOP

Supply Chain Integration

Enhanced efficiencies

Extend to New Areas

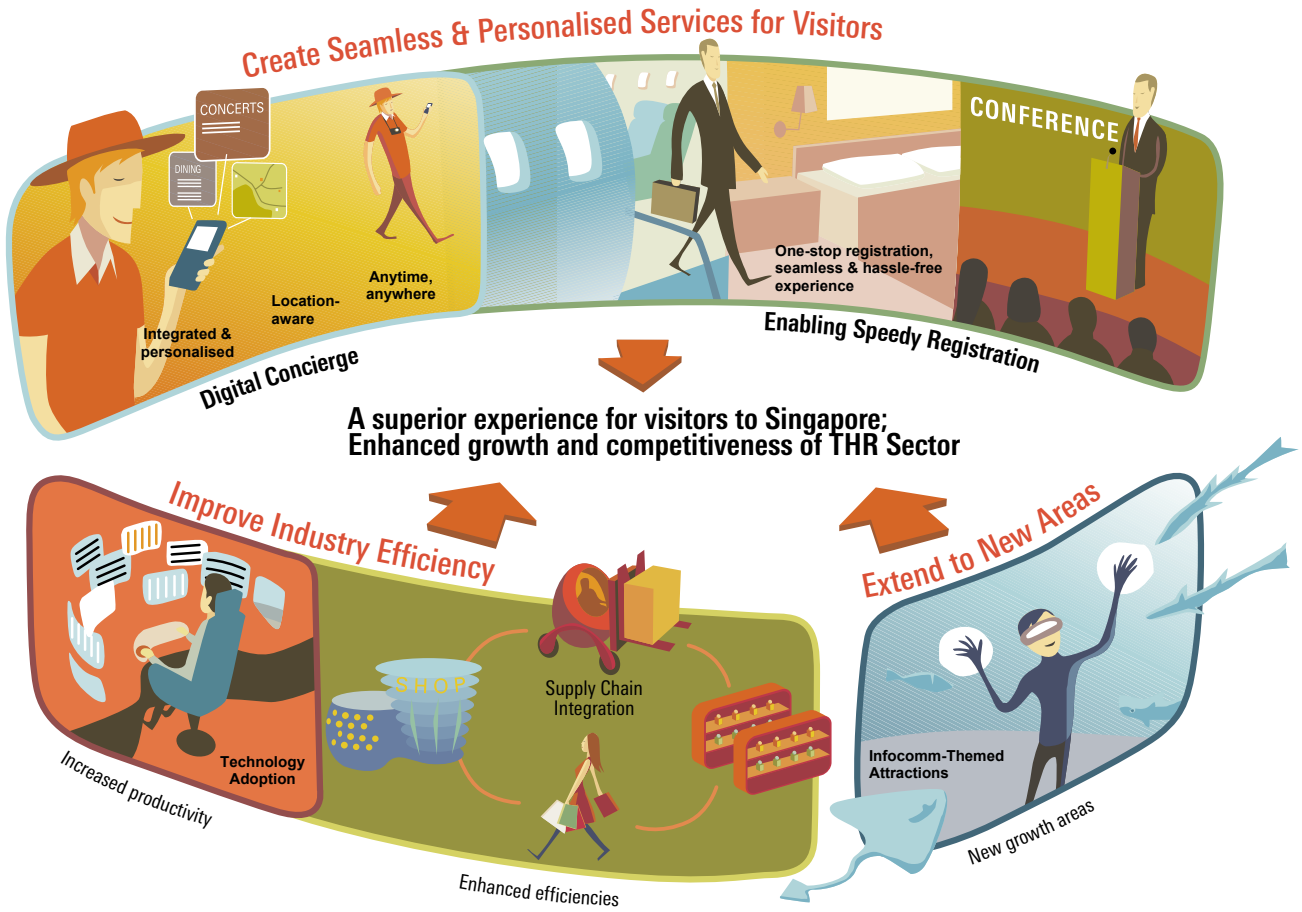Infocomm-Themed Attractions

New growth areas

Figure 3-1: iN2015 THR Outcomes, Strategies and Programmes

Strategy 1:

Create Seamless and Personalised Services for Visitors

It is important to devise ways to attract visitors to Singapore and make their stay here a delightful and unique one. This can be accomplished by offering intelligent and personalised services to our visitors: to understand and anticipate their needs, give them what they want, when they want it, and to streamline and consolidate their various interactions with service providers.

Two programmes are proposed – the Digital Concierge to provide easy access to personalised information and services, and EASE for Visitors to enable a seamless and hassle-free experience for the visitor.

Programme 1.1: Digital Concierge for Visitors
This is a personalised information service that allows a visitor a one-stop access to tourism-related content and services though his mobile device and other channels, such as the Internet, kiosk or interactive television. It will also allow him to purchase products and services.

A handful of other countries, amongst them US and Japan, already offer some form of the service. Some of these are deployed by private companies while others are provided by the tourism authorities. Examples of these initiatives are in Box 1.

Box 1: Other Traveller Information Services

The Billings Area Chamber of Commerce in Montana, USA, provided an electronic concierge service for tourists who travel through Billings. It helps the tourist choose restaurants, decide where to stay and shop, and obtain directions to the places. It is available through a kiosk placed in hotels and at the visitors' centre. It appears to be funded through advertising.

Information source: The Billings Gazette, May 2005

iAnywhere, an American company providing mobile applications, includes the Avantgo Travel Guide as part of its Avantgo mobile internet service. The travel guide allows users to access flight itineraries, directions, maps and city guides. iAnywhere also ties up with popular service providers in the travel industry, such as Expedia Corporate Travel, Northwest Airlines and Travelocity Business to offer user-specific information. This data is accessible via some PDAs and mobile phones.

Information source: Sybase iAnywhere, March 2006

The Digital Concierge service will integrate content from different sources to provide a wide variety of information and services. Information and services from different companies, content aggregators and relevant agencies will be delivered in a seamless manner. Using the knowledge of the visitor's needs and preferences, content can also be delivered in a more targeted manner. Together with the deployment of wireless broadband network across Singapore, visitors will have nation-wide ubiquitous access to a rich variety of information and services, including location-based content.

While the emphasis will be on enhancing his experience while he is in Singapore, the Digital Concierge will offer services at all points of a trip – before, during and after.

Pre-trip

Tourist does online search for a holiday destination

Views multimedia clips on Singapore at the Digital Concierge Portal

Via the same website, he makes online reservations for hotel and tour packages, and applies for immigration clearance

During Trip

The website creates his personal Digital Travel Plan

Gets welcome message on his mobile device alerting him to the Digital Travel Plan in the Digital Concierge Portal

Gets information on attractions, tours and shopping based on his interests

Location-based service provides info on his location e.g. nearby attractions and shopping info to user

Image courtesy of the Singapore Tourism Board

Digital Concierge allows choice of language and text2text & text2voice translations

Business travellers can get BTMICE-specific content, e.g. conference meeting schedule

Post-trip

Enjoys post-trip services, e.g. GST refunds

When he reaches home, he is able to access info on the places he went to, the goods he bought and browse through his digital photo album

Figure 3-2: Using the Digital Concierge before, during and after a visitor's trip

For the pre-trip portion, it will help to improve the visitor's experience when he is planning his trip to Singapore. A potential visitor will be able to plan for his trip, create an itinerary and make his travel purchases online. The purpose is to capture the interest of the growing number who do their travel research online, as well as to make it easier for them to book their trip to Singapore.

Once the visitor is in town, he can access the pre-trip plan that he has prepared earlier. The online itinerary on his mobile device will be updated with location-aware information, such as attractions and restaurants, based on his interests.

To extend the visitor's experience after he has left town, he will be able to use the service to share his trip experience with his friends and others who have been in Singapore. Hopefully, these reminders of his time here will bring him back again and draw new visitors.

The purpose of the Digital Concierge is to better address visitors' needs for relevant content that is easily accessible and customised. With hassle-free mobility and knowledge of a broader-range of activity choices, visitors may also be stimulated to spend more, extend their stay here or make return trips.

For a start, the service can be targeted at business travellers, spanning public downtown areas. It can then gradually be expanded nation-wide and offered to other types of visitors. It can also be available to those living here as some features would be useful for them, such as information about museums, Singapore's heritage, times of events and booking of tickets.

The Digital Concierge can be further expanded to include the other services relevant to residents such as government services. This will further enrich its range of content and services, and help increase its customer base and usage.

Such a service will require a sophisticated backend system to integrate the offerings from the various service providers. In the development of the Digital Concierge, the Government can work with different content providers to deliver relevant information, to incentivise companies to provide useful services, and to ensure the availability of required infrastructure and services, such as electronic payment infrastructure and location-based services.

Programme 1.2: EnAbling Speedy rEgistration (EASE) for Visitors

BTMICE is an important visitor segment for Singapore. This group of visitors places high premium on convenience and speed, and they do not want to waste time waiting in queues and going through different registrations.

The objective of this programme is to streamline the interactions that BTMICE visitors have with multiple service providers. It provides a hassle-free experience by requiring only one point of registration and integrating service providers along the value chain, thereby enabling speedy entry into Singapore, check-in at hotels and registration at conference venues for visitors. A better experience here will encourage travellers to continue choosing Singapore for BTMICE activities.

The concept of EASE is borrowed from Straight Through Processing in the finance sector, where data is passed from one party to another with minimal manual intervention, resulting in faster processing time. It can be illustrated with this scenario: The visitor arrives in Singapore and is identified using biometrics. His pre-booked transport has already been despatched to meet him. At his hotel, he can proceed straight to his room without the hassle

of checking in. His room access will be based on biometrics. The room settings, such as temperature and mini bar items, have been prepared according to his preferences. The conference organiser has also been alerted to his arrival, and conference materials, either in print or electronic form, are delivered to his room.

The programme can start with BTMICE visitors and link up the operators catering to this market, e.g. hotels and MICE organisers. It can later be extended to other groups of visitors, such as those coming here for medical treatment.

Success will hinge on the implementation of an identity management system for visitors in Singapore. The above scenario uses biometrics to identify the visitor, but there are also other means to verify identity, for example, using a tourist card.

There is also possibility of integrating such a system with immigration processes, as is done in a handful of other countries, to expedite processing.

Sufficient measures should also be taken to ensure that user privacy concerns are addressed, such as ensuring that the data is kept strictly within the "system" and offering the service on an opt-in basis.

A Superior Experience for Visitors to Singapore

By creating seamless and personalised services for visitors:

- Access to information anytime, anywhere – at their finger tips

- Targeted services based on their needs, preferences and location

- Integrated experience – before, during and after the trip

- One-stop registration, from airport to hotel room in 30 minutes

- Hassle-free interactions with service providers

Strategy 2:

Improve Industry Efficiency

Technological innovation was one of three reasons for the American retail sector's rapid growth in productivity between the late 1990s and early 2000, a McKinsey study[12] found. The other two were managerial competencies and the way companies deliver products and services.

There is good reason then to encourage the use of infocomm in the Singapore THR sector. This is a sector that is dominated by SMEs and has low levels of technology adoption compared to other sectors. Hence, more needs to be done to raise the level of infocomm use among companies in this sector.

The aim of this thrust is to raise the competitiveness of the THR sector by leveraging on infocomm to boost efficiency. Technology will also help companies deliver service with greater consistency.

Two relevant programmes are raising infocomm adoption within individual firms, and fostering links across different value chains.

Programme 2.1: Technology Adoption Programme (TAP)

While technology has the potential to help companies save cost, improve productivity, provide better service and increase revenue (see Box 2), the extent of investment in infocomm is ultimately the company's decision. Many factors come into play here – the availability of resources, amount of investment risk, the appropriateness of the technology, what competitors are doing, and what customers need.

Thus, the Government's role is not in dictating the pace and manner in which companies adopt technology, but in developing policies and mechanisms to support their adoption.

Box 2: Tangible Returns from Adoption of Infocomm

In Italy, a mountain biker cooperation, mountainbiker.it, has developed a mobile tour guide with GPS-based navigation for mountain bikers in South Tyrol. This helped South Tyrol stand out from other mountain-biking locations, and has led to more foreign tourists visiting the area. The initial development costs of €10,000 have now reaped investment returns through increase in annual membership fees and upturns in the mountain biking holidays.

Information source: "Sector Report No. 09 (September 2005), ICT and Electronic Business in the Tourism Industry", e-Business W@tch, September 2005

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12   "What's Right with the US Economy", McKinsey Quarterly 2002 No 1

A 2005 survey by STB[13] and IDA of 2,200 companies in the tourism industry here found that the main factors affecting decisions to adopt infocomm are affordability and technology fit. The companies' caution indicates that awareness of how infocomm can help business is important to these companies. It also confirms that many SMEs perceive that the investments required for implementing infocomm solutions may be too substantial, or that the returns take too long to be seen.

Bearing these issues in mind, this programme aims to increase infocomm adoption in the THR sector through these measures:

- **Raising awareness:** This is to raise the level of knowledge amongst companies on how technology can help them be more competitive. Those who are already using infocomm will be alerted to new technologies that can benefit them. A more general appreciation of infocomm will be offered to those who are late technology adopters, to help these companies better understand what technology can do for them. The Government can work with relevant trade associations to update their members on infocomm opportunities and benefits, collect and share best practices and relevant solutions, and change mindsets from "not investing in infocomm to save cost" to "investing in infocomm to stay competitive".

- **Developing infocomm skills:** This is two pronged – to enhance the level of infocomm competency amongst users in the THR sector, and to deepen domain knowledge amongst the infocomm professionals working in this sector. This aligns with the recommendations from iN2015 Manpower Development Sub-Committee, where similar sector-wide training has been proposed.

- **Encouraging infocomm use through incentives:** For companies that have fairly low level of technology adoption and are concerned about high initial IT setup costs, some form of incentives can be formulated to help them get started. For instance, the Government can work with service providers on the provision of infocomm services on a utility model for common functions, such as IT facilities management, human resource processes, procurement and customer relationship management. A utility model for software services will help THR companies avoid the high initial capital outlay and buy services on a need basis. Companies that are ready to make more sophisticated use of infocomm will be encouraged to work with infocomm companies to develop innovative solutions. These companies will also be important catalysts to lead efforts in integrating value chains within their industries.
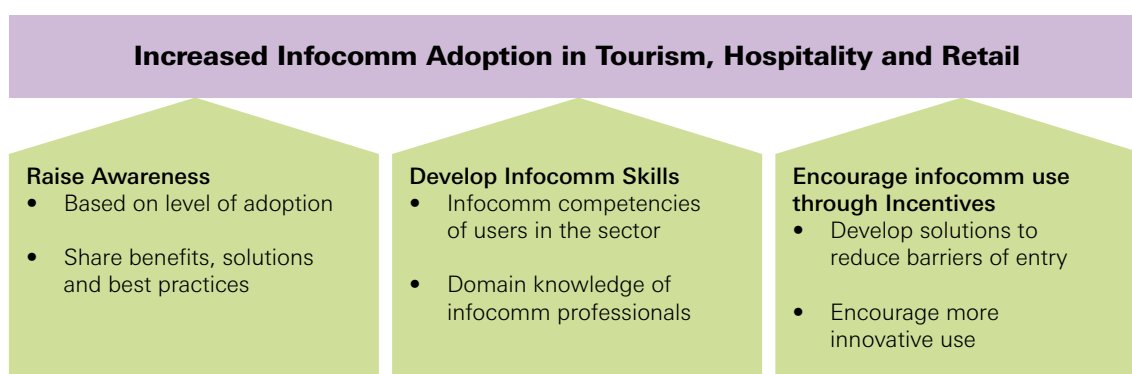
Increased Infocomm Adoption in Tourism, Hospitality and Retail

Raise Awareness
- Based on level of adoption
- Share benefits, solutions and best practices

Develop Infocomm Skills
- Infocomm competencies of users in the sector
- Domain knowledge of infocomm professionals

Encourage infocomm use through Incentives
- Develop solutions to reduce barriers of entry
- Encourage more innovative use

Figure 3-3: Components of Technology Adoption Programme

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13   A total of about 2200 companies from these segments responded to the survey: Gazetted Hotels, Travel Agents, Tourists Attractions, Food & Beverage outlets, Wellness Centres/Spas, Retailers, MICE, Tourist Guides

Programme 2.2: Supply Chain Integration

Supply chain integration can boost efficiency and productivity and there have been several such efforts done in the past, particularly in the retail sector (see Box 3). This programme seeks to maximise the potential of supply chain integration by widening the scope of integration within the retail sector (such as pursuing different retail segments), and extending it to the Tourism and Hospitality sector.

For the retail industry, this will build upon the existing efforts in eSCM (Electronic Supply Chain Management) implementation. For instance, large retailers in the supermarket segment have adopted initiatives such as CPFR and RFID technology for more accurate management of inventory levels and tracking of physical goods across their supply chains. Moving forward, further supply chain integration initiatives could include:

- **Cross-consortium supply chain integration:**
  Currently, retail stores integrate with their suppliers separately. There is little, or no, integration across different consortiums. Cross-consortium supply chain integration will further enhance efficiency amongst the suppliers as there would be greater standards conformance and inter-operability. It will also minimise the duplication of systems for different supply chains. However, any integration attempts will require that each participant's data be kept confidential to protect their commercial interests.

- **Extension to other retail segments:**
  Current attempts in supply chain integration have been limited to fast moving consumer goods in the supermarket segment. Such efforts can be expanded to other retail segments, such as those engaged in general merchandise, fashion and consumer electronics.

- **Cross-border supply chain integration:**
  Retailers making forays into markets outside Singapore will require systems such as global sourcing[14] and intermodal tracking and tracing of goods. The plan is to replicate local infocomm deployments to the retailers' overseas networks, such as deploying one integrated, but globally dispersed supply chain that serves their domestic and regional business needs.

Box 3: Supply Chain Implementation in Supermarkets

The operating profits of Japan's largest supermarket operator, Aeon Group, increased by 15 per cent to ¥89.61 billion, and its revenue rose five per cent to ¥3.223 trillion. This was partly due to the company adopting IT systems and reforming its distribution networks. Over the years, the group has been integrating its supply chain electronically and is one of the first few in Japan to introduce technological innovations like self check-out counters and 2-D barcodes for customers to obtain more information on certain products.

Information source: Retail Asia Magazine, January 2006 Issue

NTUC FairPrice supermarkets have reaped the benefits of an integrated supply chain. It currently has about 600 suppliers on its e-Procurement system. It does about S$500 million worth of business annually through this network. The chain saves about S$250,000 a year from the improved productivity of its staff who manage orders. At the same time, it has eliminated the incidence of missing and late orders. The system also helped NTUC FairPrice streamline its operations with its suppliers, making them more efficient and responsive.

Information source: NTUC FairPrice, March 2006

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14   Global sourcing entails identifying, evaluating, negotiating and configuring supply across multiple geographies to reduce costs, maximise performance and mitigate risks.

The situation is different in the tourism and hospitality industry. Here, links have to be set up amongst the various players along the tourism value chain. This will require establishing data standards and ensuring inter-operability across different systems. A preliminary assessment indicates inefficiency at various handover points across various parties serving visitors. There is neither data standardisation nor a single system that allows operators to collaborate more efficiently. For instance, integration between hotels, conference organisers and transportation is minimal. Appropriate initiatives should be implemented to improve inter-operator efficiencies along the tourism value chain.

In driving supply chain integration efforts, two key challenges will need to be addressed – to get the various players in the industry to adopt common data standards for information exchange, and to get them to work with their competitors and share data.

Strategy 3:

Extend to New Areas

The aim is to grow the THR sector by creating new products to attract new customers. One way is to use infocomm to create infocomm-themed entertainment and experiences, resulting in more attractions to support Singapore as a compelling travel destination. Entertainment and attractions incorporating infocomm are becoming popular. For example, some proposals for the Integrated Resorts included elements of infocomm-based entertainment, such as a high-tech theme park and video walls.

New attractions will also help to create buzz and generate continued interest in the local tourism industry, making it more dynamic and vibrant. It can also leverage on IDA's efforts to build up the digital media sector in Singapore, forming new attractions through the convergence of infocomm technologies, digital media and local culture in a real physical setting.

Programme 3.1: Infocomm-themed Attractions
The development of ICT-themed attractions should be encouraged. Examples of such attractions are:

- **Mixed reality experience in specially-designed tour buses:** Based on a concept being developed in New York, tourists can enjoy theatrical sounds and sights of performances superimposed on the real life street scenes while they are ensconced in a customised tour bus. Theatre, cinema and interactive entertainment can be combined into a story, which can be changed easily to sustain the interest of repeat visitors. For example, as the bus moves through the Padang, they can see scenes of past National Day parades superimposed onto the view of the real Padang.

- **Digital Theme Park:** This makes extensive use of infocomm technologies, such as mixed and virtual realities, to provide entertainment in a theme park setting. The choice of themes for this is endless – popular online games or hit movies can be used. Unlike conventional or traditional theme parks, which rely on fixed structures, a digital one provides enhanced interactivity for the visitors, allowing them to be fully immersed in a digital environment and to decide how they would want a story to unfold and end.

Implementation Approach

The programmes outlined in this report support the goal of differentiating Singapore by providing a unique and premium service to each customer. The Digital Concierge offers the visitor his own personal concierge, tour guide or shopping assistant. EASE for Visitors ensures a hassle-free experience by identifying each visitor uniquely. Initiatives to improve the efficiency of the sector, such as promoting greater infocomm adoption and integrating the supply chain, will address fundamental needs of the industry to better leverage on infocomm and enable THR companies to focus on providing better services to the visitors or customers.

Programmes like Digital Concierge and EASE for Visitors require the close partnership of the Government and the private sector in the delivery of a rich and exhaustive set of services. Their deployment can be done in tandem with the deployment of nation-wide infrastructure, led by IDA. For instance, the deployment of wireless network and location-based services in areas frequented by visitors will enable Digital Concierge to be more accessible to its users. Mobile payment will also enable easy transaction of services via mobile devices. More importantly, such services must be kept affordable for consumers, while remaining commercially viable for the service providers.

The programmes proposed can be implemented in phases. The initial focus can be on developing the Digital Concierge and raising the level of technology use in the sector. At the same time, current efforts in the retail space for Supply Chain Integration can continue.

For EASE for Visitors to work, a visitor identity management system and safeguards on data privacy will have to be implemented first. This will be followed by efforts to streamline processes to facilitate seamless information flow in the THR value chain.

CHAPTER 4
CONCLUSION

The Tourism, Hospitality and Retail (THR) sector is a high-touch sector that places significant emphasis on providing a delightful experience to the customer. Hence there is a lot of focus on improving service quality, in developing new attractions and providing a wider variety of retail goods and services.

Technology enables the industry to deliver a better and more personal service to a larger group of customers than what is possible today. Technology can also play a supporting role by helping with the routine or mundane tasks, so that the service staff will have more time to focus on improving the visitors' experience.

The people of the sector are also its greatest assets. It is important to equip them with the relevant skills and competency to better leverage on technology, and to better respond to changes in the industry and environment using technology.

Infocomm is a key factor that will help facilitate the growth of the THR sector and increase Singapore's competitiveness. It will help to contribute towards the long term goals of the sector – raising productivity, increasing the number of visitors to Singapore, and increasing visitor receipts. It is important that the Government and private sector work together to transform the industry using infocomm and make Singapore a destination of choice for all. Such a close partnership will allow Singapore to continually seek out opportunities to exploit the latest technologies to meet the challenges in the THR sector.

Annex A: IDA Secretariat for Tourism, Hospitality and Retail Sub-Committee

Name	Designation
Mr Peter Lam	Deputy Director Manufacturing & Services Infocomm Development Authority of Singapore
Ms Lee Wan Sie	Senior Consultant iN2015 Secretariat Infocomm Development Authority of Singapore
Ms Gladys Chiam	Manager Manufacturing & Services Infocomm Development Authority of Singapore

Infocomm Development Authority of Singapore
IDA is committed to growing Singapore into a dynamic global Infocomm hub. IDA uses an integrated approach to developing info-communications in Singapore. This involves nurturing a competitive telecoms market as well as a conducive business environment with programmes and schemes for both local and international companies.
For more information, visit ***www.ida.gov.sg***

Singapore Computer Society
SCS, established since 1967, is the premier professional body for IT practitioners and IT users in Singapore. With a membership of over 22,000, it is an invaluable network for its members. SCS administers various certification programmes that help individuals gain professional recognition for career development.
For more information, please visit their website at ***www.scs.org.sg***

Singapore infocomm Technology Federation
SiTF is Singapore's national infocomm industry association. It brings together 500 corporate members from MNCs and local companies, who collectively account for over 80% of the industry revenue. The SiTF assists its members in business development, market intelligence, overseas trade missions, networking and alliances.
For more information, please visit their website ***www.sitf.org.sg***