



LSCM MARKET INTELLIGENCE REPORT

**A Market Intelligence Study on Enabling Technologies for
Industries related to Logistics & Supply Chain Management**



Hong Kong R&D Centre for Logistics and
Supply Chain Management Enabling Technologies
香港物流及供應鏈管理應用技術研發中心



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TABLE OF CONTENTS

1. Background	4
• Introduction	5
• Project Team.....	6
• Acknowledgements	9
2. Editor's Column	11
3. Executive Summary.....	17
4. Broad Coverage	20
• Profile of Participants	22
• Findings	24
• Recommendations	45
5. Global/China Watch	54
• China RFID Standardization Development.....	55
• The Adoption & Application of RFID Technology in Relevant Industries in China	58
6. Appendix.....	63
• Appendix A: Discussion Guide – Technology	64
• Appendix B: Original Text of “China RFID Standardization Development”	69
• Appendix C: Original Text of “The Adoption & Application of RFID Technology in Relevant Industries in China”	71
• Appendix D: Reader Opinion Form	74
• Appendix E: Membership Application Form	75



BACKGROUND

INTRODUCTION

Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies (LSCM R&D Centre) is established with funding support from the Innovation and Technology Commission of the HKSAR Government and is commissioned to provide a one-stop shop for technology transfer and commercialization through the following roles:

- Conduct industry-oriented research
- Provide technology and market intelligence
- Provide a platform for exchange of intellectual property/technology
- Promote technology development, transfer and knowledge dissemination
- Facilitate intellectual property commercialization

Since inception, the LSCM R&D Centre was given the mission to foster the development of core competencies in applied R&D in logistics and supply chain related technologies and facilitate adoption of these technologies by industries in Hong Kong and mainland China. Our long-term goal is to strengthen Hong Kong's economic competitiveness and maintain its position as a world-class leading logistics hub in the PRD region.

This Project, titled **"A Market Intelligence Study on Enabling Technologies for Industries related to Logistics & Supply Chain Management"** is to empower the logistics and supply chain community in Hong Kong and PRD region with market and technology intelligence for industry users to locate and adopt new technologies, for technology vendors to identify market needs so as to develop relevant applications and for R&D parties to gain inspiration from global technology landscape and to identify prevailing technology gaps for further R&D.

This Publication, namely **"LSCM Market Intelligence Report (Issue 6) – August 2009"** is to share findings from on-site company visit exercise focusing on technology sector in PRD. In addition to technology and market challenges based on interviews with those in this field, we also include the updates on China RFID standardization development as well as the progress of key RFID projects and pilots in China in this issue. To download all past reports and learn more about this project, visit www.lscm.hk/mi.



BACKGROUND

PROJECT TEAM

It has been our mission to provide market intelligence and we place emphasis on enabling technologies which are essential for us to carry on our commitment and dedication to technology development. To support the study, the Project Team has pulled in expertise from the LSCM R&D Centre as well as professionals from the industry in Hong Kong and mainland China to take a combination of approaches to gather industry problems, technology needs and technology development gaps in Hong Kong and PRD while keeping a close watch on technologies, policies and standards developments in China.

To gather extensive market intelligence from logistics and supply chain community in Hong Kong and PRD, the Project Team is proud to partnering with the **Hong Kong Productivity Council and Research Center for Modern Logistics Technology and Management of Lingnan (University) College, Sun Yat-Sen University** to carry out the collaborative work in the region. They are experienced in conducting surveys and have good industry network to support our broad-based market study. In addition, the Project Team is working in close collaboration with the **HKU School of Business** in the preparation of findings and insightful analysis out of this market study. This consultancy support includes sharing and discussion of reference materials, advice on writing approach, research expertise and efficient feedback.

Hong Kong Productivity Council

Hong Kong Productivity Council (HKPC) is a public body established by legislation of Hong Kong with 40 years of history in serving manufacturing and related servicing industry. The mission of HKPC is to help Hong Kong enterprises to improve productivity and enhance value along the value chain in terms of consultancy service, training, technology transfer and other programs.

Role in the Project

- Advise on research methodology
- Carry out in-depth interviews with enterprises in Hong Kong
- Liaise with local industries and promote project results

Research Center for Modern Logistics Technology and Management Lingnan (University) College, Sun Yat-Sen University

Founded in July 2002, Research Center for Modern Logistics Technology and Management is a leading research institute of Sun Yat-sen University. The mission of the Center is to foster excellence in cutting-edge logistics research, education, and industrial collaboration in order to promote the development of modern logistics in China.

The Center is committed to research, education, and industrial collaboration of various aspects of logistics management. Logistics problems among the research domains of the Center include logistics system analysis and design, regional logistics strategy and planning, organizational logistics system design and optimization, distribution center design, transportation management and routing optimization, organizational supply chain management, management information systems in logistics and supply chain.



BACKGROUND

PROJECT TEAM

Role in the Project

- Carry out in-depth interviews with enterprises in PRD
- Liaise with industries in PRD and promote project results

School of Business, The University of Hong Kong

The HKU School of Business was established after its transformation from the Department of Management Studies in the Faculty of Social Sciences in 1995. Since then, the School of Business has rapidly expanded its variety of programs in terms of major and minor subjects, as well as enhances its intake of the best and the brightest local and non-local students. Apart from offering academic programmes, the Faculty of Business & Economics organizes its research and teaching development activities in clusters through research centres that draw on members within the Faculty and across campus. The research outputs delivered by the Faculty are highly recognized and treated as a leading source of innovative thinking for government and business in Hong Kong and the region.

Role in the Project

- Advise on research direction and provide perspectives in writing market intelligence reports

On the China Watch part, the Project Team has partnered with **RFID China Alliance** to have a close watch on the new developments in China. It has an extensive network that the project team members can leverage in gathering information about technology adoption, policy changes and development of national RFID standard in China.

RFID China Alliance

RFID China Alliance is the only non-profit industrial association on RFID in China. The Alliance, comprised of RFID chip, label, middleware, reader, and printer solution providers, was founded on Nov 5, 2005, under the leadership of the Ministry of Information Industry (MII) of the People's Republic of China. Its core responsibility is to promote RFID's industrial development in China, and provide up-to-date information on RFID Chinese governmental policy, latest technological developments while holding an open attitude on RFID standards and protocol.

Role in the Project

- Closely monitor the policy and standard developments in China
- Provide regular update on RFID adoption and application among industries in China



BACKGROUND

PROJECT TEAM

The following are core members of the Project:

Project Coordinator and Principal Investigator

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BACKGROUND

ACKNOWLEDGEMENTS

The Project Team would like to thank many organizations and individuals who have contributed to the development of this publication.

We would like to record our sincere appreciation for the companies, which participated in in-depth interviews to share invaluable opinions with us. They helped the Project Team in understanding the technology capabilities of I.T. companies in PRD.

We would like to express our appreciation to the following industry support organizations, which helped us to promote the project activities and related results by all means.

Digital Trade and Transportation Network Limited

Federation of Hong Kong Industries - Transport and Logistics Services Council

GS1 Hong Kong

Guangdong and Hong Kong Feeder Association Limited

Guangdong RFID Technology Service Center

Hong Kong Association of Freight Forwarding And Logistics Ltd

Hong Kong CFS and Logistics Association Ltd

Hong Kong Electronics & Technologies Association

Hong Kong Logistics Association

Hong Kong Productivity Council

Hong Kong Science & Technology Parks Corporation

Hong Kong Shippers' Council

Hong Kong Trade Development Council

Hong Kong Wireless Development Centre

Hong Kong Wireless Technology Industry Association



BACKGROUND

ACKNOWLEDGEMENTS

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Hong Kong

Hong Kong Productivity Council
Dr. Lawrence Cheung
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Dr. Benjamin Yen

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Prof. Chen Gongyu Dr. Zhang Hongbin

China

RFID China Alliance
Madam Zhang Qi Mr. David Ouyang

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Last, and most important, thanks to the colleagues of the LSCM R&D Centre-specifically Management Team, Industry and Technology Programs Team, Administration Team and PR & Corporate Communication Team for their dedication and unfailing support to this project.





EDITOR'S COLUMN

TECHNOLOGY DEVELOPMENT OF ISO 18000-6 UHF RFID READER

This article presents the desk research results by the Project Team on the latest technology development of ISO 18000-6 UHF RFID Reader. A total of 8 cases were found covering technologies for reader, reader chip, reader module and accessory; these included: mid range UHF RFID reader with USB serial interface, desktop USB interrogator for EPC Gen 2 UHF applications, UHF reader that reads 2,000 tags simultaneously, the single chip approach that reduces the form factor, power consumption, weight and cost of RFID readers as well as the reduced size and power consumption RFID module that supports anti-collision, etc. Table 1 summarizes the 8 cases; and the corresponding references and source of information are supplemented in Table 2.

Table 1: Summary of Latest Technologies for UHF RFID Reader

Index	Country	Description	Fix/Mobile	Near Field/ Far Field
(a)	US	Impinj purchased Intel's RFID business unit and the rights to sell Intel's RFID chips R1000	Both	Both
(b)	Singapore	Institute of Microelectronics developed RF chip to enable low cost UHF RFID reader/writer modules (yet to be commercialized)	Mobile	Far Field
(c)	US	SkyeTek Inc. launched anti-collision UHF reader module (M10) with up to a 42% smaller footprint than other 1 watt embedded readers	Both	Both
(d)	Austria/ Thailand	Austria Micro Systems and Thailand IE Tech jointly developed mid range UHF RFID reader with USB serial Interface	Fix	Far Field
(e)	US	SkyeTek Inc. launched desktop USB RFID interrogator (SR70) for EPC Gen 2 UHF applications	Both	Far Field
(f)	Canada	GAO RFID Inc. introduced UHF RFID readers that read up to 2,000 tags simultaneously	Fix	Far Field
(g)	US	Intermec Inc. launched 1st handheld RFID system with GPS and WWAN and 1st handheld RFID system with 1D and 2D barcode readability	Mobile	Both
(h)	US	Alien Technology released new software for RFID readers to identify velocity and position of tags for airline business	Fix	Far Field



EDITOR'S COLUMN

TECHNOLOGY DEVELOPMENT OF ISO 18000-6 UHF RFID READER

Table 2: Highlights of Cases: Reader, Reader Chip, Reader Module and Accessory

Index	Detailed Description
(a)	<p>Impinj purchased Intel's RFID business unit and the rights to sell Intel's RFID chips R1000 10 Jul 2008</p> <p>Impinj, a provider of EPC Gen 2 UHF radio frequency identification tags and readers, announced on July 10, 2008 that it has purchased Intel's RFID business unit and the rights to sell Intel's R1000 RFID chips. The chips support the EPC Gen 2 and ISO 18000-6C specifications, and incorporate many standard electronics components into a single chip, thereby reducing the size, cost and complexity of ultrahigh-frequency (UHF) readers. The dimension of R1000 is 8mm by 8mm. Unit price is about US\$40.</p> <p>The acquisition of Intel assets further enhances Impinj's position in the RFID market by adding a proven, high-performance, highly integrated reader radio chip to the Impinj family of UHF Gen 2 RFID products. For developers of UHF RFID readers and reader-modules, the R1000 chip provides superior levels of design flexibility, integrating onto a single chip 90 percent of the components required for a reader radio. By delivering unprecedented performance, integration and cost effectiveness to a worldwide customer base, the R1000 chip enables all reader form factors - fixed, mobile, embedded and others - in applications across numerous vertical markets, including supply chain management, asset tracking, authentication and access control.</p> <p>Source: http://www.impinj.com, http://www.rfidblog.org, http://www.rfidjournal.com</p>
(b)	<p>Institute of Microelectronics developed RF chip to enable low cost UHF RFID reader/writer modules (yet to be commercialized) 29 Jan 2007</p> <p>The Institute of Microelectronics in Singapore announced on 6th Feb 2007 that the development of a single reader chip for UHF RFID will dramatically reduce both the price and form factor of portable RFID readers.</p> <p>Existing UHF readers are typically assembled using numerous discrete electronic components, each of which has to be manufactured separately. The new chip from IME, by contrast, is an integration of all these components onto a single piece of silicon. The result is a cheaper and smaller electronic device. According to Rajinder Singh, the laboratory head of the Integrated Circuits & Systems division at IME, the new chip will enable card-sized UHF reader modules that weigh less than 100 grams and consume less than one watt of power. The new chip can be used in portable and handheld UHF readers.</p> <p>Source: http://www.rfidupdate.com</p>
(c)	<p>SkyeTek Inc. launched anti-collision UHF reader module (M10) with up to a 42% smaller footprint than other 1 watt embedded readers 15 Jan 2009</p> <p>SkyeTek Incorporation, a provider of RFID software and reader technology, announced availability of new UHF reader module, SkyeModule M10 on 15th Jan 2009. The new reader module can read up to 5 meters of range and support FCC regulatory mode. It has a robust design to provide anti-collision performance and is up to 42% smaller footprint than other 1 watt embedded readers. The dimension of M10 is 42.8mm x 76.5mm x 11.2mm. The unit price for M10 is about US\$385.</p> <p>The SkyeOS firmware and SkyeWare development software, allows device OEMs, product design firms, and system integrators to support applications such as: inventory management, asset tracking, and patron management. The M10's SkyeOS firmware is field-upgradeable. ReaderDNA licensing allows customers to manufacture the module themselves to reduce the costs in larger production deals.</p> <p>SkyeTek delivers a turn-key RFID application that enables real-time management of field-based inventory and resources that allows manufacturers and service providers to track the movement of inventory, assets, and workers in real-time.</p> <p>Source: http://www.morerfid.com, http://www.skyetek.com, http://hk.mouser.com</p>



EDITOR'S COLUMN

TECHNOLOGY DEVELOPMENT OF ISO 18000-6 UHF RFID READER

Table 2: Highlights of Cases: Reader, Reader Chip, Reader Module and Accessory

Index	Detailed Description
(d)	<p>Austria Micro Systems and Thailand IE Tech jointly developed mid range UHF RFID reader with USB serial Interface 31 Mar 2009</p> <p>Austria Micro Systems, a global designer and manufacturer of analog ICs has announced the release of a fixed mid range UHF RFID reader IET RU-210u, with USB and serial interface on the 31st March 2009. The product was jointly developed with IE Technology Co., Ltd, a RFID system integrator in Bangkok.</p> <p>The chip inside of this reader is an EPC Class 1 Gen 2 UHF Reader IC (i.e. AS3990/91) which includes an EPC Class 1 Gen 2 protocol engine and is available with an integrated power amplifier to reduce the bill of materials. The Gen 2 UHF Reader IC provides high level of integration, low power consumption and low cost BOM. It is in a QFN 64pin 9 x 9mm package.</p> <p>The AS3990/91 UHF reader chip is an integrated analogue front end and data framing system for a 900MHz RFID reader system. The AS3990/91's unique programmable features enable a single SKU, stock keeping unit - an unique identifier for each distinct product and service that can be ordered from a supplier. Its simplicity is emphasized with only 32 registers to enable full RF, filtering, and protocol control. The unit price for AS3990/91 is about US\$35.</p> <p>The built in programming options make AS3990/91 suitable for a wide range of applications in UHF RFID systems. Application of AS3990/91 includes: barcode label printers, add-on module for handheld computers, PDA, point of sales, currency reader, UHF RFID reader systems, hand-held UHF RFID readers, toll systems and mobile phones. The RU-210u UHF RFID reader, with USB interface, is suitable for logistics, manufacturing and retail applications.</p> <p>Source: http://www.eetasia.com, http://www.earthtimes.org, http://en.wikipedia.org, http://www.austriamicrosystems.com</p>
(e)	<p>SkyeTek Inc. launched desktop USB RFID interrogator (SR70) for EPC Gen 2 UHF applications 31 Mar 2009</p> <p>SkyeTek Incorporation, a provider of RFID reader and software technology, announced the availability of the new desktop USB reader/writer for UHF applications on the 31st March 2009. The new reader, SR70 incorporates the SkyeTek's M7 reader technology and the SkyeReader console software. Unit price for SR70 is about US\$370.</p> <p>The M7 reader module is smaller than a matchbook (53mm x 36mm x 9mm) and draws only a quarter of a watt of battery power. It could turn a handheld PDA into an RFID interrogator, as well as replace the high-frequency (HF) RFID technology employed in machine-to-machine communications, such as robotic equipment used on factory floors, or deployed in RFID-enabled shelving, among other things. The price of the module is about US\$233.</p> <p>The dimension of SR70 is 5.8" in length, 3.5" in width and 1.0" in depth. The SR70 includes the SkyeReader Console software, which provides users with a graphical web-based interface to configure provision and monitor RFID-tagged inventory items and RFID components. The SR70 is designed for reading and writing to tags attached to items and documents in desktop applications such as tag commissioning, shipping and receiving, point-of-sale, and check-in/checkout. The device features plug-and-play USB 2.0 connectivity, a 5.8-inch by 3.5-inch footprint, an integrated directional antenna, power control and tag anti-collision/filtering algorithms.</p> <p>Source: http://skyetek.com, http://parts.digikey.com, http://www.pr-inside.com, http://www.rfidjournal.com</p>



EDITOR'S COLUMN

TECHNOLOGY DEVELOPMENT OF ISO 18000-6 UHF RFID READER

Table 2: Highlights of Cases: Reader, Reader Chip, Reader Module and Accessory

Index	Detailed Description
(f)	<p>GAO RFID Inc. introduced UHF RFID readers that read up to 2,000 tags simultaneously 27 Sep 2008</p> <p>GAO RFID Incorporation, a Canadian provider of RFID hardware and solutions introduced UHF reader series, GAO 227004 to the market on Sept 2008. This UHF RFID reader series are long-range interrogators. They provide data collection in wireless applications such as identification, tracking and tracing, and localization of assets and personnel. The advanced UHF radio frequency technology enables the RFID readers to transmit and receive data at distances of up to 300 feet. They can communicate even with rapidly moving tags due to the high transmission rate. Pre-installed software features data pre-processing for fast communication, while use of RS422 or RS485 bus permits daisy-chaining of several readers to one host interface. The unit price of GAO227004 is USD\$3950. The dimension is 153mm x 67mm x 97mm. (including cover)</p> <p>The UHF RFID Reader Series contain adjustable output power which is able to adjust the read/write range of 100 meters (300 ft). It can read up to 2000 tags simultaneously. There are drivers for various operating systems, allowing independent applications.</p> <p>Source: GAO sales dept, http://www.gaorfid.com, http://news.thomasnet.com, http://www.free-press-release.com</p>
(g)	<p>Intermec Inc. launched 1st handheld RFID system with GPS and WWAN and 1st handheld RFID system with 1D and 2D barcode readability 24 Feb 2009</p> <p>Intermec Incorporation, a provider of automated information and data capture (AIDC) and mobile computing systems has announced the new IP30 add-on RFID reader on the 24th Feb 2009. It becomes the first handheld RFID system with integrated GPS and WWAN when combined with the Intermec CN3 mobile computer. In addition, when the IP30 is combined with the Intermec CK61ex, it becomes the first handheld RFID system with an integrated near/far bar code imager enabling users to scan both 1D and 2D barcodes with distances up to 50 feet.</p> <p>The new Intermec IP30 Handheld RFID Reader supports both in-premise and in-field applications such as warehouse operations, enterprise asset management, in-transit-visibility, direct store delivery and exceptions handling. The Intermec IP30 add-on passive UHF RFID handle is also an EPCglobal-certified solution for adding mobile RFID read/write capability.</p> <p>IP30, combined with the CK61NI mobile computer and Intermec's rigid RFID tags, provides a certified device for reading and writing to RFID tags and transmitting the data via wireless LAN. The unit price for IP30 is about US\$1730.</p> <p>Source: http://www.intermec.com, http://www.adcnordic.com, http://www.scansource.com, http://www.manufacturingtalk.com</p>
(h)	<p>Alien Technology released new software for RFID readers to identify velocity and position of tags for airline business 11 Apr 2008</p> <p>RFID-manufacturer Alien Technology announced at April 2008 that it has created new software for its tag readers. The software provides information on the velocity and position of tags, and can thereby distinguish between adjacent tagged objects such as luggage.</p> <p>Not being able to distinguish between two tagged objects has been a big headache for the airline business. Alien Technology's RFID readers can save a lot of labor effort for the airlines because the tags don't need to be aligned with the reader. In addition, the device might read several tags at the same time, without knowing which specific piece of luggage the tags are tied to.</p> <p>The new software will be able to discriminate between different bags, and provide information such as where the bag is going and whether a certain piece of luggage is supposed to be searched by Customs.</p> <p>Source: http://news.cnet.com</p>



EDITOR'S COLUMN

TECHNOLOGY DEVELOPMENT OF ISO 18000-6 UHF RFID READER

From the above we observed that both the power consumption and the size of the components for ISO 18000-6 UHF RFID readers are decreasing. These factors have created a favorable environment for the development of mobile and ubiquitous readers. As the technology is becoming more mature, we believe that there will be more applications in the mobile and embedded reader area.

At LSCM, we have a roadmap on ISO 18000-6 UHF RFID readers. The first target in our reader roadmap is to develop innovative solution for shelf and point-of-sale (POS) management. Shelf management includes replenishment in supermarkets and retail stores. POS management includes check-out counter in libraries and cashiers in department stores. The second target is to develop handheld and near field communication system for various industries. That include be anti-counterfeiting for luxury products and on-line payment verification. We believe that the market potential for the application of mobile RFID reader technology is substantial. We are dedicated to develop pioneer solutions to facilitate local industries to maintain competitiveness.

We are currently conducting a project "Lightweight RFID Reader Chip for NFC and Mobile Applications" that aims to propose a low-cost and lightweight RFID reader chip that is tailor-made for NFC applications with the following features: 1) Proprietary secured communication engine compatible with current UHF Gen2 protocols. 2) Reduced complexity of Gen2 functional set that retains only those needed for NFC applications. 3) Significantly reduced power consumption. 4) Minimized silicon cost and peripherals that result in significantly reduced system integration cost. Interested parties can contact us by phone or visit www.lscm.hk for more information.



EXECUTIVE SUMMARY

In the light of the background as introduced, one of the main roles of the LSCM R&D Centre includes empowering the logistics and supply chain community in Hong Kong and PRD with market and technology intelligence. The LSCM R&D Centre was awarded a 2-year project, titled **“A Market Intelligence Study on Enabling Technologies for Industries related to Logistics & Supply Chain Management”** in 2008 to focus its efforts on the study of enabling technology areas which are of the greatest industry concerns. Accordingly, the release of a suite of **LSCM Market Intelligence Report** that offers industry players with analytical results from in-depth interviews from a wide spectrum of industries is a major work that we have been undertaking. We have benefited from the views gathered through a series of on-site company visits, forums and meetings along with finding cause for both requirement and concern from local industries. To provide both research users and providers with a comprehensive view on RFID industry development, we also offer featured report on policy, standardization and the adoption & application of RFID Technology in relevant industries in China on a regular basis.

The LSCM R&D Centre had published **LSCM Market Intelligence Report (Issue 2)** in October 2008 to share findings which were based on information collected from 30 I.T. companies. In this current issue, we look at a new set of findings from 20 respondents from mainland China. Some consistent views between the two sets of data were noticed and summarized in **Section 8 of Broad Coverage**. For instance, we found that the adoption rate of *Wireless related* technology was relatively high in both mainland China and Hong Kong. In analysis of the solutions which have been widely adopted in respondents' customer's business process, the rankings concluded from the two groups were coherent, they were: (1) ERP; (2) WMS; (3) MRP and (4) SCM. It is not difficult to notice that *limited budget* from customers was the top perceived challenge in applying I.T. solutions. However, we observed some variances from the two groups particularly the adoption rate of *Web Service, SaaS* in mainland China which was 5 times higher than that of Hong Kong. And mainland I.T. companies are more focus on developing *Management Information System* whereas Hong Kong showed higher attention to *Customer Relationship Management* (Details refer to **Section 8.1 of Broad Coverage**).

I.T. is treated as a kind of valuable logistics resource, it will bring many benefits for companies and make them to be more competitive. Through adopting the right solutions, I.T. enables logistics practitioners to serve their clients better by means of improved operation efficiency and services. At the same time, the development of new technologies, along with customers' requirements and business processes is equally important. In this issue, we further elaborated the use of strategic position map in identifying customers' current and projected positions towards supply chain management and how I.T. companies could suggest their customers shifting to the desired positions. The transformation of supply chain position from *Traditional*, to *Efficient*, and eventually become *Collaborative* involves the formulation of strategy and the corresponding moving path which were suggested in **Section 8.3 of Broad Coverage**. The principle among these are readiness for adoption and the technology components (Details refer to **Section 8.4 of Broad Coverage**) that are needed to achieve such results. From our study, the gap between users and I.T. companies towards the efficiency improvement with RFID reminds I.T. companies the importance of helping customers realize the benefits, especially emerging technology like RFID. The adoption should be combined with other system, such as middleware, database, or ERP in order to get the full benefits.



EXECUTIVE SUMMARY

In last October, we introduced the RFID Standardization Work Group (RFID SWG) of the Ministry of Industry and Information Technology (MIIT) and the major responsibilities of its seven sub-groups. For less than a year, during the first meeting held in June 2009, key progress of some sub-groups including Tags and Readers Group, Frequency and Communication Group, Data Structure Group, Security Group and Application Group were reported and focus of their work in 2009 have been planned (*Details refer to **Section 3, “China RFID Standardization Development” of Global/China Watch***). To recap, one of the major tasks of the RFID SWG is to carry out research on RFID standards system and release RFID standards-related documents. According to the technical guidance issued in 2008, research results including technical specifications are scheduled to release and be timely distributed within the group (*Details refer to **Section 1, “China RFID Standardization Development” of Global/China Watch***).

Lastly, we look at the first batch of pilot projects related to RFID applications which was released in late February 2009 by National Development and Reform Commission (NDRC). Since then, various provinces and municipalities have been driving innovative RFID applications and promoting the development of related industries. This includes: (1) special security vehicle management and control system in Nanjing; (2) RFID application for tobacco industry in Zhejiang; (3) RFID-based service platform for special equipment management in Shangdong; (4) RFID application for enterprise electronic supply chain; (5) RFID-based toll collection system in Guangdong; (6) Intelligent urban traffic management in Chongqing; (7) RFID application for pig farming industry in Sichuan; (8) RFID application for logistic operations in Guizhou; (9) RFID-based workflow for container operations in Tianjin; (10) RFID and e-Seal applications for port-related logistics in Shanghai; and (11) RFID application in regional food logistics. In addition, NDRC has listed the requirements of follow-up work on these pilot sites in which application standard and management criteria are worth considering to increase social management, production efficiency and the ability for accurate control (*Details refer to **Section 1, “The Adoption & Application of RFID Technology in Relevant Industries in China” of Global/China Watch***).

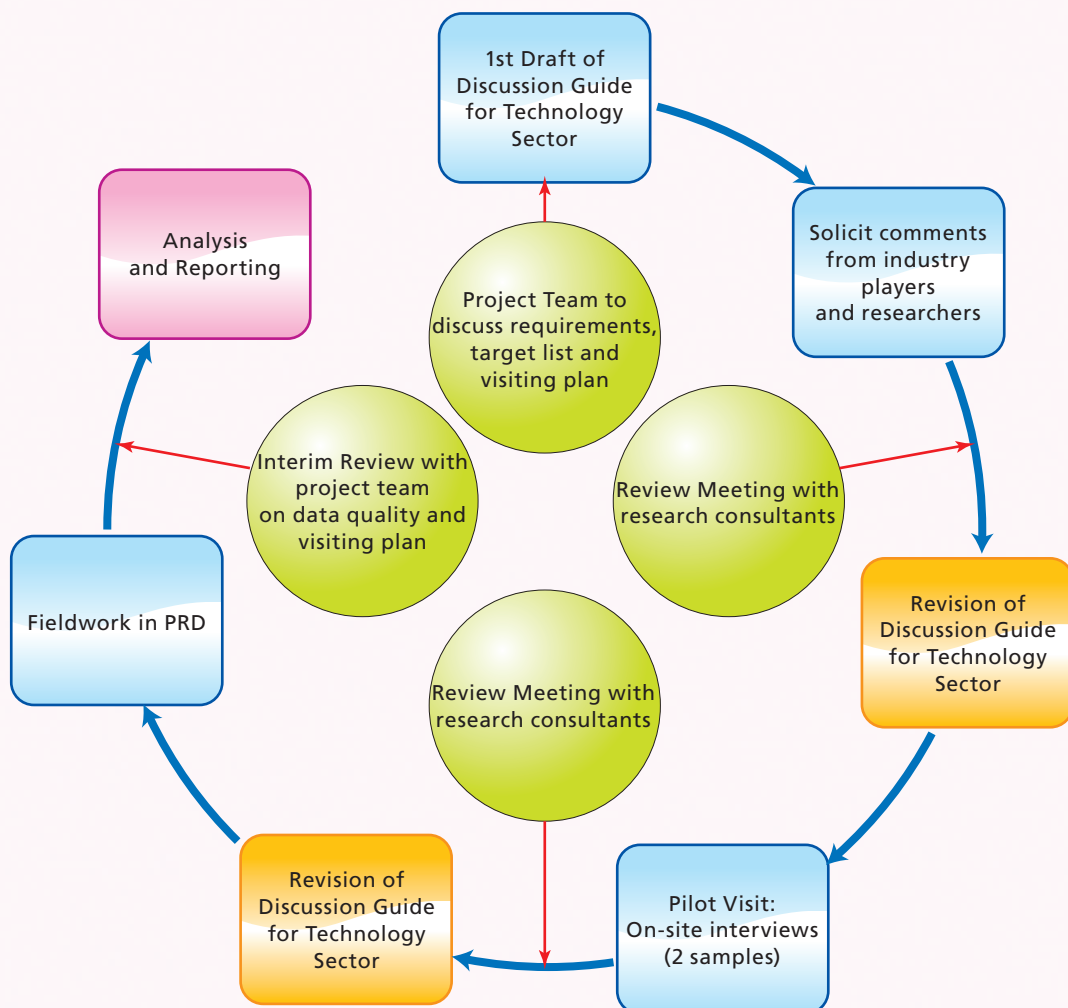


BROAD COVERAGE



BROAD COVERAGE

The essential details presented in this section are based on information collected from 20 technology companies from mainland China. All interviews were carried out by research consultants between November 2008 to January 2009, the average duration per interview took approximately 1.5 to 2 hours. For each company, the research consultant is required to probe opinions and stimulate discussion surrounding the company's available technologies, target markets, insight of new technologies, development landscape, industry issues and trends as well as how technology transfer and R&D will evolve the technology products and solutions along logistics and supply chain industry. To maintain consistency of interview approach, a suite of industry focused discussion guide was in use (Appendix A) and the following diagram outlines the methodology of the study.





BROAD COVERAGE

PROFILE OF PARTICIPANTS

1 Profile of Participants

1.1 Profile of Participants by Business Nature

Among the 20 participants, they engaged in different I.T. industries which were summarized in the following table. Both (Software and Hardware) accounted for the majority 50% (10 out of 20) of the total participants whereas I.T. Software and I.T. Consulting were both ranked second which accounted for 15% each.

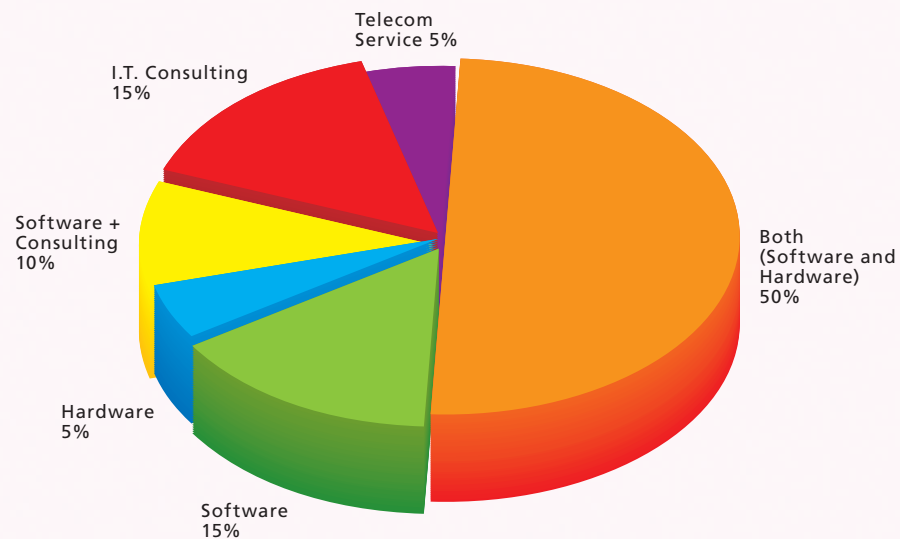
1.1 Table

Analysis of Participants by Business Nature

Business Nature	Number of Participants	%
Both (Software and Hardware)	10	50%
I.T. Software	3	15%
I.T. Consulting	3	15%
Software+Consulting	2	10%
Hardware	1	5%
Telecom Service	1	5%
Total	20	100%

1.1 Chart

Analysis of Participants by Business Nature





BROAD COVERAGE

PROFILE OF PARTICIPANTS

1.2 Profile of Participants by Employee Size

In terms of employee size, 35% of our surveyed companies employed less than 50 staffs. The findings were summarized in the following table.

1.2 Table

Analysis of Participants by Employee Size

Number of Staff	Number of Participants	%
< 50	7	35%
50-100	5	25%
101-200	2	10%
>200	6	30%
Total	20	100%

1.3 Profile of Participants by Job Title

Among the 20 respondents participating in this survey, 11 out of 20 (accounted for 55%) were Manager, 4 out of 20 (accounted for 20%) were Executive. Details were summarized in the following table.

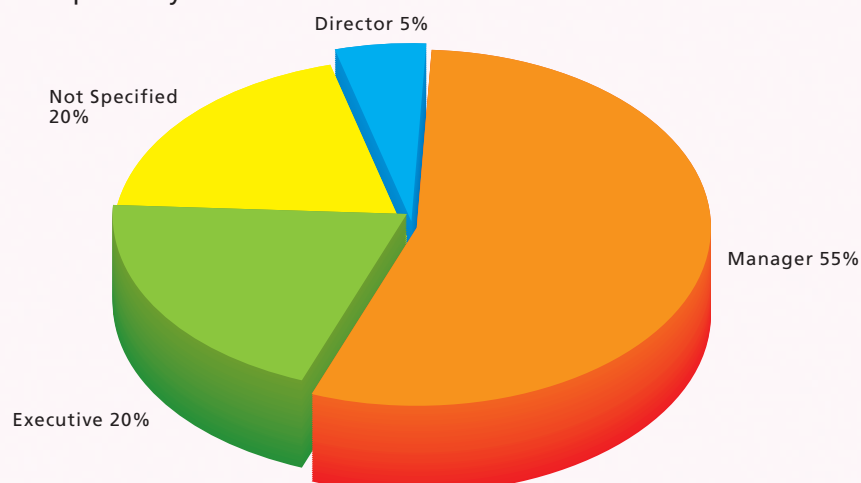
1.3 Table

Analysis of Participants by Job Title

Job Title	Number of Participants	%
Director	1	5%
Manager	11	55%
Executive	4	20%
Not Specified	4	20%
Total	20	100%

1.3 Chart

Analysis of Participants by Job Title





BROAD COVERAGE

FINDINGS

2 Business Process

2.1 Analysis on Main Business Focus

In this section, participants' core business solutions/products were examined. Participants were probed with various core business solutions/products; they could select more than one answer depending on their actual business nature. All 20 participants indicated their attributes and the findings were summarized in the following table.

2.1a Table

Summary of Selections by Main Business Focus

Enterprise Business Solutions	%	E-Business Solutions	%
Management Information Systems	17%	E-Commerce (B2B, B2C, etc)	31%
Information & Knowledge Management Solution	15%	Enterprise Portal & Content Management Solutions	27%
Business Intelligence/Decision Support Systems & Query/Reporting Solutions	11%	Payment Solutions	15%
Customer Relationship Management	9%	Electronic Data Interchange Solutions	12%
Human Resources Management	9%	On-line Analytical Processing	12%
Sales Force Automation Systems	9%	Others (Please specify)	4%
Others (Please specify)	9%	Total	100%
Accounting Solutions	6%		
Sales Order Processing & Fulfillment Systems	6%	Office Automation Solutions	%
Enterprise Resources Planning	4%	Back Office Management	45%
Manufacturing Resource Planning	4%	Document Management Solutions	30%
Point of Sales	2%	Library Information Systems	20%
Total	100%	Others (Customization)	5%
		Total	100%

Operation Automation Solutions	%	Hardware/Consumable Products	%
Automated Workflow & Authorization Solutions	10%	Others	35%
Distribution & Transportation Solutions	10%	RFID Interrogator/Tags	24%
Procurement Management Systems	10%	Telecommunication	24%
Bar-coding, Identification & RFID Solutions	8%	Barcode Reader/Printer	12%
Geographical Information Systems	8%	Point-of-Sales Equipments	6%
Logistics Management Systems	8%	Packaging and Labels	0%
Warehouse Management Systems	8%	Total	100%
Tracking and Management Devices	8%		
Freight Forwarding Management	5%	Platform/Services	%
Import/Export and Trading Systems	5%	Marketplace	38%
Inventory Management Solution	5%	Others (SC management platform, Security, Logistic informatin platform, Security platform)	25%
Property & Facilities Management Systems	5%	Telecommunications	19%
Ocean Forwarding Management	3%	Track and Trace	13%
Shipping Management	3%	Business Service	6%
Supply Chain Management	3%	Total	100%
Fleet Management	3%		
Total	100%		



BROAD COVERAGE FINDINGS

The mostly selected business focus for each category was further shortlisted in the following table. The findings suggested that Management Information Systems, Automated Workflow & Authorization Solutions, E-Commerce, Back Office Management, Others (SC management platform, Security, Logistic information platform, Security platform), Marketplace were the most popular business focuses among the 6 I.T. business categories.

2.1b Table
Summary of Most Popular Business Focus

I.T. Business Categories	Business Focus	%
Enterprise Business Solutions	Management Information Systems	17%
Operation Automation Solutions	Automated Workflow & Authorization Solutions	10%
E-Business Solutions	E-Commerce (B2B, B2C, etc)	31%
Office Automation Solutions	Back Office Management	45%
Hardware/Consumable Products	Others (SC management platform, Security, Logistic information platform, Security platform)	35%
Platform/Services	Marketplace	38%

2.2 Analysis on Type of Technology Used for Solutions or Products

In this section, the type of technology used for/in participants' solutions or products was examined. Technologies include: Auto-id Identification Technology, Positioning Technology, Wireless Communication Technology, Data Interchange Technology, Service Architecture, RDBMS, Business Intelligence and Development Platform. Participants' indications were listed in the following table.

2.2a Table
Type of Technology Used for/in Solutions or Products

Auto-id Identification Technology	%	Service Architecture	%
1-D barcode	27%	Web Service and SOA	58%
2-D barcode	27%	SaaS (Software as-a Service)/ Software on-demand	25%
RFID	47%	Software Appliance	17%
Positioning Technology	%	RDBMS	%
GPS	33%	Oracle	36%
RTLS	0%	SQL Server	29%
LBS (location-based service using mobile network)	67%	Sybase	7%
Wireless Communication Technology	%	DB2	11%
Wireless LAN	48%	MYSQL	18%
Mobile Network (e.g. GPRS, HSDPA)	33%	Development Platform	%
Others (e.g. ZigBee, Bluetooth, TETRA, Mobitex)	19%	Java (J2EE and others)	42%
Data Interchange Technology	%	Microsoft (VB, VC++, .NET framework etc)	33%
EDI	27%	LAMP (Linux + Apache + Mysql + Php/Perl/ Python) or WAMP (Windows + Apache)	21%
XML (e.g. RosettaNet, UBL, ebXML)	73%	Others (e.g. Python, C)	3%



BROAD COVERAGE FINDINGS

Based on the table 2.2a, the most popular types of technologies used for/in Solutions or Products were further summarized by each category in the table 2.2b. The findings suggested that RFID, LBS (location-based service using mobile), Wireless LAN, XML, Web Service and SOA, Oracle and Java were the most popular types of technologies adopted in participants' solutions/products.

2.2b Table
Summary of Most Popular Type of Technology Used for/in Solutions or Products

Categories	Type of Technologies	%
Auto-id Identification Technology	RFID	47%
Positioning Technology	LBS (location-based service using mobile network)	67%
Wireless Communication Technology	Wireless LAN	48%
Data Interchange Technology	XML (e.g. RosettaNet, UBL, ebXML)	73%
Service Architecture	Web Service and SOA	58%
RDBMS	Oracle	36%
Development Platform	Java (J2EE and others)	42%

2.3 Analysis on Technology Adoption

With reference to the previous section, we look at the benefits from technologies adoption, participants' core products/services, business mode and the brands for reselling in this section.

2.31 Analysis on Benefits from Technologies

When asked the benefits from adopting the technologies, in a total of 14 respondents provided information, 42% of the respondents believed that I.T. could enhance operation efficiency and competitiveness; whereas 21% believed that it could satisfy customers' demands. The findings were summarized in the following table.

2.31 Table
Summary of Benefits from Technology Adoption

Benefits	%
Enhance Operation Efficiency and Competitiveness	42%
Satisfy Customers' Demands	21%
Improve Training Efficiency	16%
Reduce Cost	11%
Increase Profitability	11%
Total	100%

Remarks: The above figures are rounded to the nearest integer



BROAD COVERAGE FINDINGS

2.32 Analysis on Core Products/Services

In this part, participants were asked to give opinions of the core products/services offering to their clients. The findings were fragmented; still the top three were shortlisted and they were (1) e-Government (18%); (2) Education/Academic Platform (11%) and Public Finance Software/Tax Service (7%).

2.32 Table

Summary of Core Products/Services

Core Solutions/Products	%
e-Government	18%
Education/Academic Platform	11%
Public Finance Software; Tax Service	7%
Customized Software	7%
Software Development (for Electric Power System and Power Station)	7%
Software (Small Shareware)	4%
Mobile Commerce, Smart Mobile Phone and Appliance	4%
Communication Software and Systems Served for Operator, Digital TV, Set-top Box, 3 Party Software in Mobile Phone	4%
Knowledge Management and MIS	4%
Gsltop	4%
Communication and Enterprises Application Terminal	4%
Communication and Industry Information System	4%
Network Integration	4%
Village Management System	4%
IPA Technology	4%
Supply Chain Information Platform	4%
Internet Application	4%
System Integration Service	4%
Chips of Multimedia and Other Electronic Products	4%
Total	100%



BROAD COVERAGE FINDINGS

2.33 Analysis on Business Mode

In this part, participants' business mode was examined. A total of 20 respondents provided information. The finding suggested that Self Development + Resell was the most common business mode, which accounted for 65%; it was followed by Self Development, which accounted for 25% of the total respondents.

2.33 Table

Summary of Business Mode

Business Mode	Number of Participants	%
Self Development	5	25%
Resell	2	10%
Self Development + Resell	13	65%
Total	20	100%

2.34 Analysis on Brand Reselling

In this section, participants were further asked the brands they were reselling. 13 respondents provided information. The findings suggested that Measuring Automation was the most popular brand that the respondents were reselling, which accounted for 15% of the total respondents. Detailed findings were summarized in the following table.

2.34 Table

Summary of Brand Reselling

Brands to Resell	%
Measuring Automation	15%
Sinobest	8%
ChangChuan Technology	8%
Allcom	8%
Logan Software	8%
C-berry	8%
Astro	8%
Gsltop	8%
Telepower Technology	8%
ANKYA	8%
Fenet	8%
AoKai	8%
Total	100%



BROAD COVERAGE

FINDINGS

3 Analysis on Target Customer/Industry Group

In this section, participants' main customers, the departments they were mostly dealing with and project management experience were examined.

3.1 Analysis on Main Customers

Among the various customer groups, Government was the most popular group which 29% of the respondents were serving this segment; whereas Enterprises, Trading, FMCG were the second most popular segments (accounted for 19%).

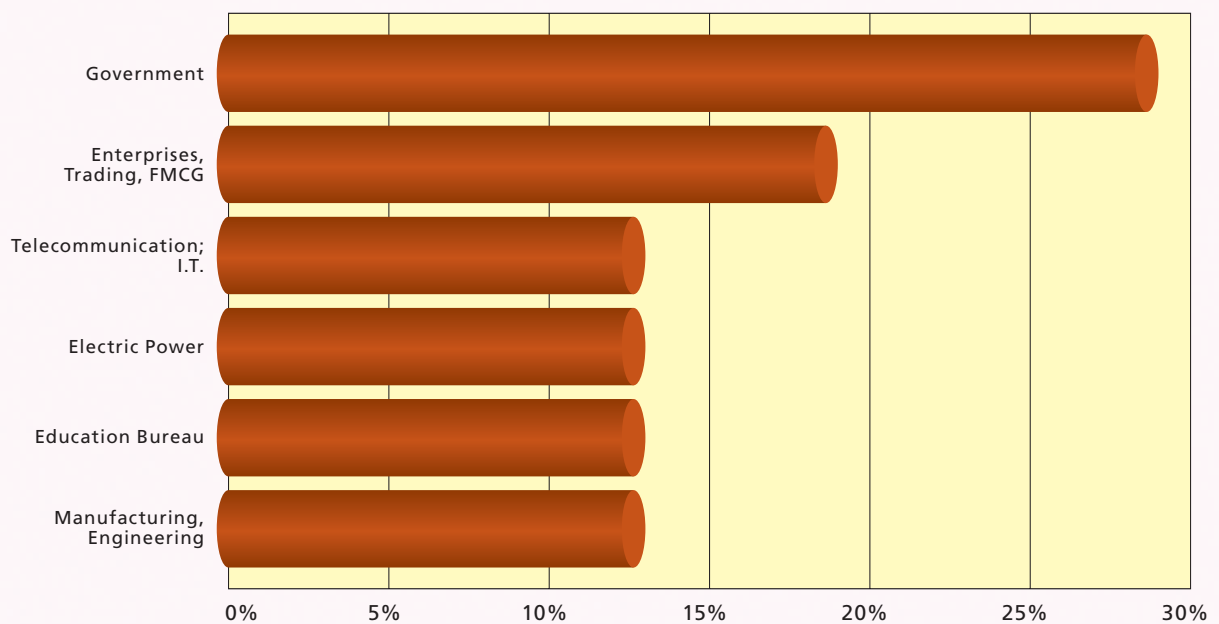
3.1 Table

Analysis on Main Customers

Main Customers	%
Government	29%
Enterprises, Trading, FMCG	19%
Telecommunication; I.T.	13%
Electric Power	13%
Education Bureau	13%
Manufacturing, Engineering	13%
Total	100%

3.1 Chart

Analysis on Main Customers





BROAD COVERAGE

FINDINGS

3.2 Analysis on Department

Among the various departments, End-user ranked the highest (accounted for 32%); Government department, I.T. Support, Operation and Sales & Marketing ranked second with 10% of the respondents were dealing with these departments. Detailed findings were summarized in the following table.

3.2 Table
Analysis on Departments

Departments	%
End-user	32%
Government Department	10%
I.T. Support	10%
Operation	10%
Sales & Marketing	10%
Administration	6%
Internal Resource Management	6%
Accounting & Finance	3%
Inventory Management	3%
Production	3%
Purchasing	3%
All Segments	3%
Total	100%

Remarks: The above figures are rounded to the nearest integer

3.3 Analysis by Project Size

A total of 16 participants provided information on their project size. 9 out of 16 respondents (accounted for 56%) stated that the project size in momentary value fall in the range \$500,000-\$3,000,000. The second most common project size range was under \$500,000, which accounted for 38% (6 out of 16 respondents). Detailed findings were summarized in the following table.

3.3 Table
Analysis by Project Size

Project Size (\$ Million)	Number of Participants	%
< 0.5M	6	38%
0.5M-3M	9	56%
3M-6M	1	6%
Total	16	100%



BROAD COVERAGE

FINDINGS

3.4 Analysis by Project Cycle

A total of 17 participants provided information on their average project cycle. 13 out of 17 respondents (accounted for 76%) stated that their average project cycle was between 6 to 12 months. The second common project cycle was project between 3 to 5 months, which accounted for 12% (2 out of 17 respondents). Detailed findings were summarized in the following table.

3.4 Table

Analysis by Project Cycle

Project Cycle	Number of Participants	%
< 3 Months	1	6%
3 - 5 Months	2	12%
6 - 12 Months	13	76%
> 12 Months	1	6%
Total	17	100%

3.5 Analysis by Project Member

A total of 17 participants provided information on this section. 8 out of 17 respondents (accounted for 47%) stated that their average project member was between 11 to 20 staffs; whereas it was followed by the range of 6 to 10 staffs, which accounted for 29% (5 out of 17 respondents). Detailed findings were summarized in the following table.

3.5 Table

Analysis by Project Member

Project Members	Number of Participants	%
1-5	2	12%
6-10	5	29%
11-20	8	47%
> 20	2	12%
Total	17	100%



BROAD COVERAGE

FINDINGS

4 Portfolio Assessment

In this section, the portfolio of the respondents was assessed. Research areas included: The importance of technology upgrade, the concern areas on an I.T. application from customers' perspective, the importance of relationship maintenance, project failure, customers' satisfaction, and urgency for improvement areas were examined.

4.1 Analysis by Problems of I.T. Adoption Faced by Customers

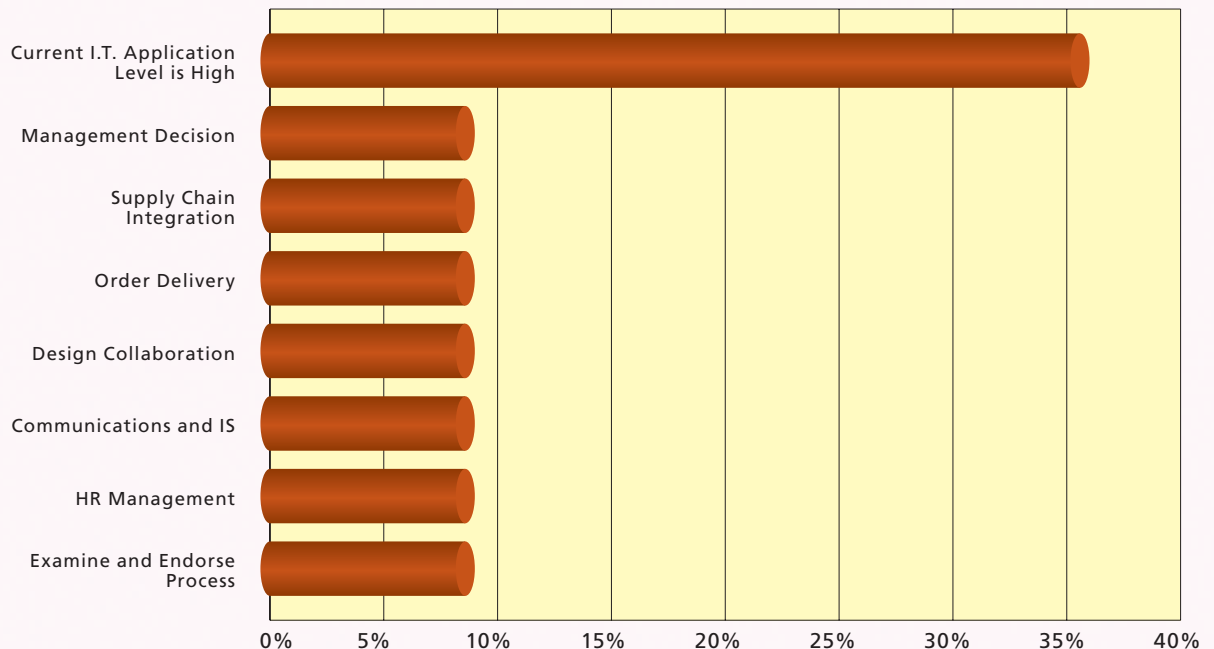
Respondents were asked from a solution provider's view, the problems of I.T. adoption faced by their customers. Furthermore, I.T. adoption on business operation, technical, human resources, finance, external perspectives were examined.

4.11 Business Operation: Business Operation Adopts the Least I.T.

In this part, participants were asked from their perception from their clients, what business process adopts the least technology. A total of 9 respondents provided information on this part. It was found that 36% of the respondents said that their customers' current I.T. application level was high. The other areas adopted the least I.T. included Management Decision, Supply Chain Integration, Order Delivery, Design Collaboration, Communication and IS, HR Management, Examine and Endorse Process. These seven areas accounted for 9% of the total respondents.

4.11 Chart

Business Process Adopts the Least I.T.





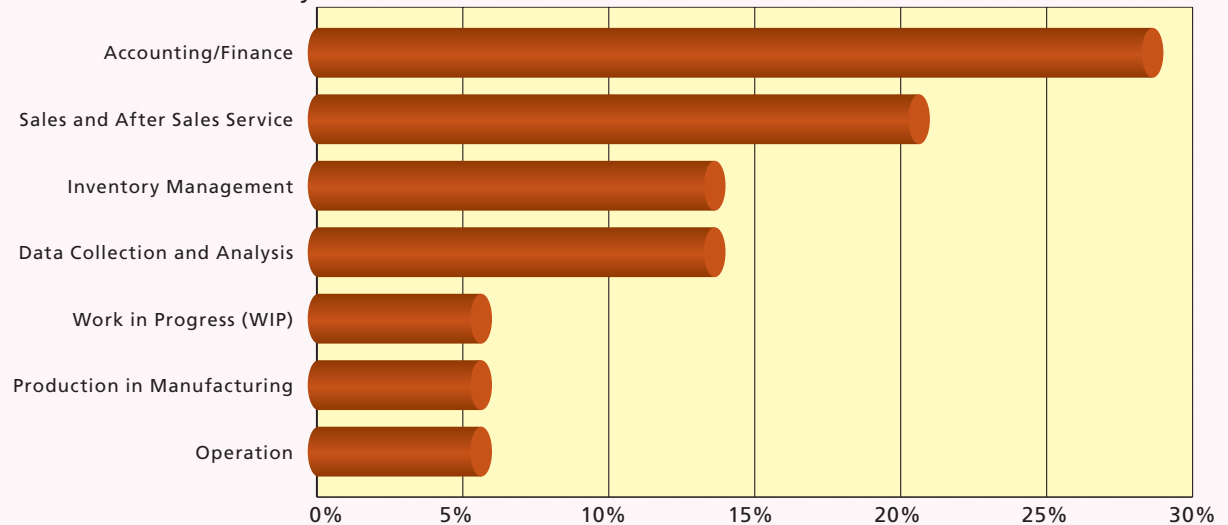
BROAD COVERAGE FINDINGS

4.12 Business Operation: Business Process Heavily Relies on I.T.

In this part, participants were further asked from their perception, what business process relies heavily on I.T. by their clients. A total of 10 respondents provided information on this part. It was found that Accounting/Finance, Sales and After Sales Service and Data Collection and Analysis were the top 3 areas that they perceived the clients heavily relied on technology. They accounted for 29%, 21% and 14% respectively.

4.12 Chart

Business Process Heavily Relies on I.T.

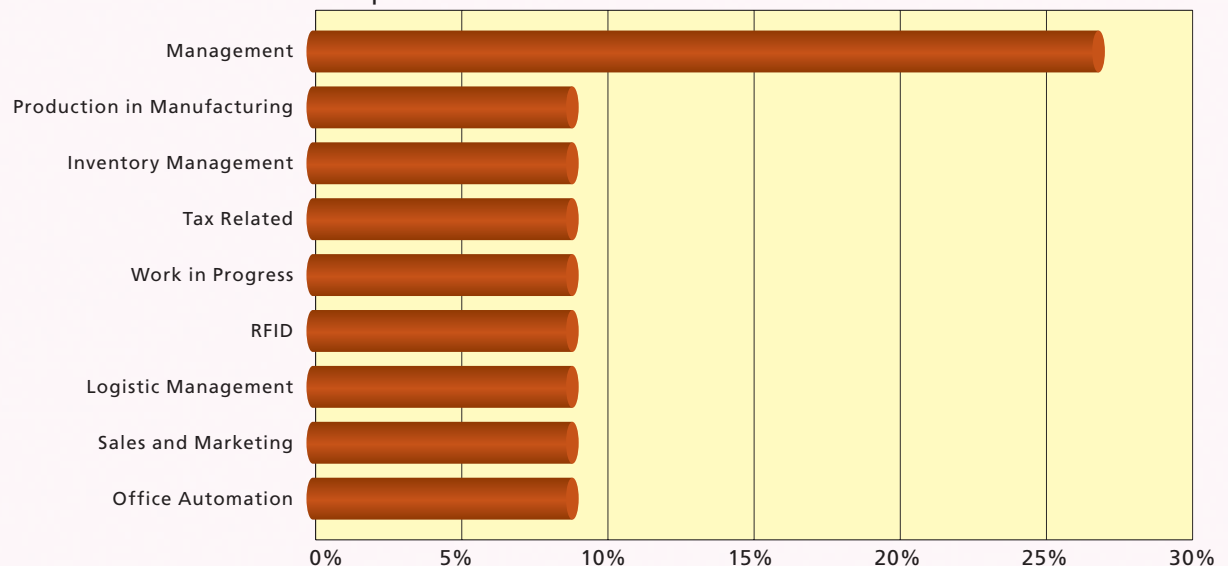


4.13 Business Operation: Business Process Should Adopt I.T.

In addition, participants were asked from their perception, what business process should adopt I.T., but yet to be applied by their clients. A total of 11 respondents provided information on this part. It was found that 27% of respondents regarded that Management was the area that they perceived the clients should adopts technology. The rest of the business processes include Production in Manufacturing, Inventory Management, Tax related, Work in Progress, RFID, Logistic Management, Sales & Marketing, Office Automation. These eight areas accounted for 9% of the total respondents respectively.

4.13 Chart

Business Process Should Adopt I.T.





BROAD COVERAGE FINDINGS

4.14 Technical Perspective: Technologies Widely Adopted in Customer's Business Process

In this part, participants were asked from their perception, what technologies have been widely adopted in customer's business process. A total of 19 respondents provided information. The findings indicated that Web Services, SaaS were perceived as the most widely adopted technologies in customer's business process, which accounted for 30% of the total respondents. It was followed by Data Interchange Technology (26%) and Wireless Technology (21%). Detailed findings were summarized in the following table.

4.14 Table

Analysis on Widely Adopted Technologies

Technologies	%
Web Service, SaaS	30%
Data Interchange Technology: EDI/XML	26%
Wireless Technology, e.g. Wi-Fi, GPRS, EDGE, UMTS	21%
Barcode/RFID	13%
Positioning Technology, e.g. RTLS, GPS	6%
Others (Information Security/2-Dimensional Code)	4%
Total	100%

4.15 Technical Perspective: Solutions Widely Adopted in Customer's Business Process

Participants were further asked from their perception, what solutions have been widely adopted in customer's business process. A total of 9 respondents provided information. The findings indicated that ERP was perceived as the most widely adopted solution in customer's business process, which accounted for 30% of the total respondents. It was followed by WMS (25%) and MRP (20%). Detailed findings were summarized in the following table.

4.15 Table

Analysis on Widely Adopted Solutions

Solutions	%
ERP	30%
WMS	25%
MRP	20%
SCM	15%
Others (CRM, IPA Chips)	10%
Total	100%



BROAD COVERAGE FINDINGS

4.16 Human Resources Perspective

In this part, participants were asked about their perception towards human resources. A total of 20 respondents provided information. The findings indicated that Weak Technology Knowledge was most common concern on their perception towards Human Resources, which accounted for 39% of the total respondents. It was followed by No Influence (22%), Low Application Needs (9%), Insufficient Professional Staff (9%), and Difficult to Change Existing Practice (9%). Detailed findings were summarized in the following table.

4.16 Table

Analysis on Adoption from Human Resources Perspective

Factors from HR Perspective	%
Weak Technology Knowledge	39%
No Influence	22%
Low Application Needs	9%
Insufficient Professional Staff	9%
Difficult to Change Existing Practice	9%
Conflict of Interest from Department	4%
Afraid on Increasing Cost	4%
Customers Satisfaction	4%
Total	100%

4.17 Finance Perspective

In this part, participants were asked about their perception towards finance factors. A total of 20 respondents provided information on this part. The finding indicated that the majority of the respondents believed Limited Budget was the most influential issue from finance perspective (52%), it was followed by No Influence (38%); Difficult to Present ROI and Interested in Government Financed Projects (5% respectively). Detailed findings were summarized in the following table.

4.17 Table

Analysis on Adoption from Finance Perspective

Factors from Finance/Economic Perspective	%
Limited Budget on I.T. Solution	52%
No Influence	38%
Difficult to Present ROI	5%
Interested in Government Financed Projects	5%
Total	100%



BROAD COVERAGE

FINDINGS

4.18 External Perspective (i.e. Government Regulations)

In addition, participants were asked about their perception towards external factors. A total of 20 respondents provided information on this part. The findings indicated that the top three external factors were Government Law and Regulation Changing (25%); it was followed by Believed that Government Regulation will have Positive Effect on I.T. Adoption and Believed that Government should put more Efforts (20% respectively). Detailed findings were summarized in the following table.

4.18 Table

Analysis on Adoption from External Perspective

External Factor	%
Government Law and Regulation Changing	25%
Believed that Government Regulation will have Positive Effect on I.T. Adoption	20%
Believed that Government Should Put More Efforts	20%
No Influence	15%
Different Government Level have Different Requirements	10%
Economic Crisis Incurred Less Demands	10%
Total	100%

4.2 Analysis on Motivating Factors

In this section, participants were prompted to rate the most important motivating factors when deciding to enhance or upgrade their technological capabilities and customer offerings (1=Less important; 5=Most important). For each factor answered by the participants, we had selected those who rated 4 or 5 for that particular factor for analysis. It was indicated that Improve Operation Efficiency/Productivity ranked the highest (95%), it was followed by Increase Customer Service (84%) and Help Manage the Operation (74%). The findings were summarized in the following table.

4.2 Table

Analysis on Motivating Factors

Motivating Factors	Number of Respondents	Weighed (Important to Very Important)	%
Improve Operational Efficiency/Productivity	20	19	95%
Improve Customer Service	19	16	84%
Help Manage the Operation	19	14	74%
Improve Decision Making	18	13	72%
Improve Competency	19	13	68%
Direct Customer Request	18	12	67%
Improve Data Quality	18	11	61%
Save Time	19	10	53%
Reduce Human Error	19	10	53%
Reduce Labor Costs	20	9	45%
Industry Trend	19	8	42%
Pressure from Competitors	19	7	37%
Enhance Cooperation with Business Partner (Data/Information sharing)	19	6	32%
Clear ROI	19	4	21%



BROAD COVERAGE FINDINGS

4.3 Ranking on the Concerned Areas on I.T. Application from Customers' Perspective

In this part, participants were asked to rate the concerned areas on I.T. application from the customers' perspective they perceived (1 - Least important; 5 - Most important). For each factor answered by the participants, we had selected those who rated 4 or 5 for that particular factor for analysis. The majority ranked Solution Appropriateness as top concern (85%), it was followed by Capability of Solution Vendor (35%) and Price and Technology (both with 30%). The findings were summarized in the following table.

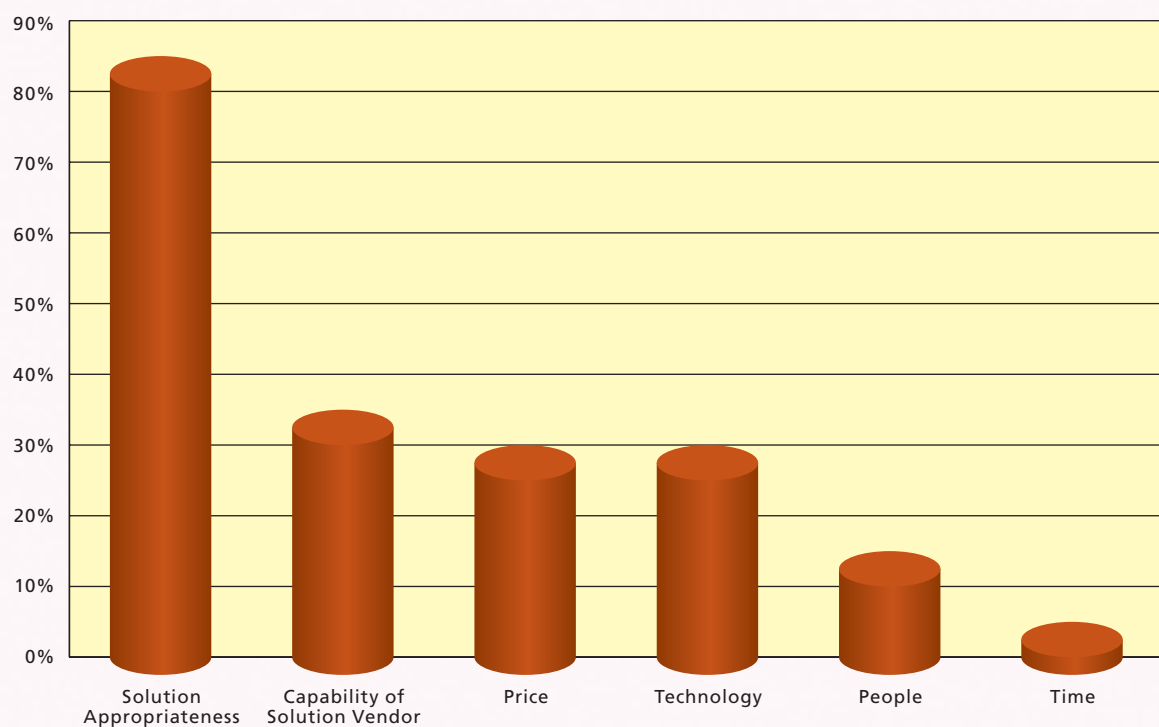
4.3 Table

Analysis on Concerned Areas from Customers' Perspective

Attributes	Weighed (Important to Very Important)	%
Solution Appropriateness	17	85%
Capability of Solution Vendor	7	35%
Price	6	30%
Technology	6	30%
People	3	15%
Time	1	5%

4.3 Chart

Analysis on Concerned Areas from Customers' Perspective





BROAD COVERAGE FINDINGS

4.4 Analysis on Importance of Relationship Maintenance

In this part, participants were prompted to rate the importance of attributes of relationship maintenance (1 - Least important; 5 - Most important). For the attributes indicated by the participants, we selected those who rated 4 or 5 for that particular factor for analysis. In a total of 20 respondents' provided information, the majority ranked Successful Implementation of Solution as the first criteria (100%), it was followed by Good Post-sales Service (95%) and Appropriate solutions (90%). The findings were summarized in the following table.

4.4 Table

Analysis on Importance of Relationship Maintenance

Attributes	Weighed (Important to Very Important)	%
Successful Implementation of Solution	20	100%
Good Post-sales Service	19	95%
Appropriate Solutions	18	90%
Professional Solution Consulting	16	80%
Innovative Technology/Solution	12	60%
Personal Relationship with Customers	12	60%
Short Project Cycle	8	40%
Low Price	7	35%

4.5 Analysis on Project Failure

In this section, the project failure rate, and the reasons for failure were examined.

4.51 Analysis on Failure Rate

In a total of 20 respondents provided information on this part, 14 respondents (70%) indicated that their failure rate were less than 10%; whereas 4 respondents (20%) stated their failure rate were over 30%. Whereas there were 2 respondents (10%) indicated that their failure rate were ranged between 10% to 30%. The findings were summarized in the following table.

4.51 Table

Summary of Failure Rate

Failure Rate	Number of Respondents	%
Less than 10%	14	70%
10-30%	2	10%
Over 30%	4	20%
Total	20	100%



BROAD COVERAGE FINDINGS

4.52 Analysis on Reasons of Failure

In this part, the reasons of failure were further examined. 14 respondents provided information, the findings suggested that Unclear (Frequent Change) User's Requirement, Bad Project Management and Reluctance of Customer/User were the top three reasons for failure; they all represented 24% of the total respondents. The findings were summarized in the following table.

4.52 Table
Analysis on Reasons of Failure

Reasons of Failure	%
Unclear (Frequent Change) User's Requirement	24%
Bad Project Management	24%
Reluctance of Customer/User	24%
Solution Appropriateness	14%
Technical Capabilities	14%
Total	100%

4.6 Analysis on Urgency for Improvement

In this part, participants were asked to rate on the improvement areas with urgency (1 - Least urgent; 5 - Most urgent). For each attribute answered by the participants, we had selected those who rated 4 or 5 for that particular factor for analysis. The findings suggested that the three most urgent areas perceived by the respondents for improvement were (1) Better After Sales Services (65%); (2) Better Technology Alternatives with Less Constraints (45%) and (3) Improves Time Management of Service Delivery (30%); it was noteworthy to find out Pricing ranked the lowest among the various areas of improvement (5%). Detailed findings were summarized in the following table.

4.6 Table
Analysis on Urgency for Improvement

Areas on Improvement	Weighed (Urgent to Very Urgent)	%
Better After Sales Services	13	65%
Better Technology Alternatives with Less Constraints	9	45%
Improves Time Management of Service Delivery	6	30%
Others (please specify)	6	30%
Pricing	1	5%



BROAD COVERAGE

FINDINGS

5 Applications Barriers and Concerns

5.1 Analysis on Perceived Challenges in Applying I.T. Solutions for Customers

In this section, the biggest challenges in applying the current products/solutions to their customers were examined. Participants were asked to rate the attributes in terms of the degree of challenge (1 - Least challenging; 5 - Most challenging).

1	2	3	4	5
Less challenging				Most challenging

For each attribute answered by the participants, we had selected those who rated 4 or 5 for that particular factor for analysis. It was indicated that the top three challenges were Limited Budget (58%); it was followed by Shortage of Skilled I.T. People from Customers or Internal (41%) and Project Management Problems (39%). Detailed findings were summarized in the following table.

5.1 Table
Analysis on Participants' Perceived Challenges

Challenges for I.T. Applications	Number of Respondents	Weighed (Challenging to Very Challenging)	%
Limited Budget from the Customers	19	11	58%
Shortage of Skilled I.T. People from Customers or Internal	17	7	41%
Project Management Problems	18	7	39%
Lack of Industry/Government Support	18	6	33%
Data Integration with Customers' Current System	17	5	29%
Difficult to Cope with Rapid Technological Changes and Business Environment	17	5	29%
Complexity of Application Software	18	3	17%
Shortage of Appropriate Technology or Solutions	18	3	17%
Supply Issues for Reseller	18	2	11%
Domain Knowledge of Solution Vendors	18	2	11%



BROAD COVERAGE

FINDINGS

6 R&D and RFID Perception

In this section, participants were asked to give opinions on their perception on R&D of technology; their R&D investment and mode of conducting R&D were examined. In addition, respondents' perception on RFID were further analyzed.

6.1 Analysis on R&D Investment

Participants were asked to provide information on the percentage of the total investment in their I.T. adoption (Current I.T. investment % - to - Revenue). In a total of 15 participants provided information, it was indicated that the majority (33%) of the I.T. investment level fell in the range of over 50%, it was followed by the range of 11% to 30% (33%). Detailed findings were summarized in the following table.

6.1 Table

Analysis on R&D Investment

R&D Investment %	Number of Participants	%
< 10%	1	7%
11%-30%	5	33%
31%-50%	3	20%
> 50%	6	40%
Total	15	100%

6.11 Analysis on Mode of R&D

Participants were further asked to provide information on the mode of conducting R&D. In a total of 18 participants provided information, it was indicated that among them, the majority (50%) of the respondents were Both Self Development and with Partners; it was follow by Self Development (28%). Detailed findings were summarized in the following table.

6.11 Table

Analysis on Mode of R&D

Mode of R&D	Number of Participants	%
Both Self Development & with Partners	9	50%
Self Development	5	28%
Develop with Partners	4	22%
Total	18	100%

6.2 Analysis on RFID Perception

In this section, participants were asked to share their opinion on their perception of RFID technology and its applications. Areas include how their customers perceive RFID technology and its applications in their own industries/companies; their industry view towards RFID; the barriers to the applications of RFID technology were examined.

6.21 Perception of RFID from Customer's Viewpoint

In this part, participants were asked their perception of RFID from their customer's viewpoints. 8 out of 20 respondents provided information on that part while the rest of the 12 respondents stated that they could not provide information as their clients were not using. As it was an open-ended type questions, participants could share more than one opinion. 20% of the respondents' customers believed RFID can improve efficiency whereas 60% of the respondents' customers believed Current usage of RFID is low and adopted in limited areas. Detailed findings were summarized in the following table.



BROAD COVERAGE FINDINGS

6.21 Table

Perception of RFID from Customer's Viewpoint

Perception of RFID from Customer's Viewpoint	%
Positive	
It can Improve Efficiency	20%
Negative	
It has Security Issue	10%
Current Usage is Low and Adopted in Limited Areas	60%
Clients Show Interests but Lack of Knowledge	10%
Total	100%

6.22 Perception of RFID from I.T. Industry's Viewpoint

In this part, participants were further asked their I.T. Industry viewpoints towards RFID. 7 out of 20 participants provided information. As it was an open-ended type questions, participants could share more than one opinion. 42% of the respondents believed that RFID could Improve Efficiency; whereas 17% believed that RFID's Adoption cost is High, Currently Low Usage and Not Mature. Detailed findings were summarized in the following table.

6.22 Table

Perception of RFID from I.T. Industry's Viewpoint

Perception of RFID from I.T. Industry's Viewpoint	%
Positive	
It can Improve Efficiency	42%
Negative	
Cost is High	17%
Currently Low usage	17%
Not Mature	17%
Low ROI	8%
Total	100%

6.23 Analysis on Barriers of RFID

In addition, participants were asked to give opinion on the barriers of the development of RFID. A total of 10 participants provided information. As it was an open-ended type questions, participants could share more than one opinion. 53% of the respondents believed that High Adoption Cost was the biggest barrier for the development of RFID; whereas Technical Issues ranked second, it accounted for 29% and it was followed by Low Recognition (12%). Detailed findings were summarized in the following table.

6.23 Table

Analysis on Barriers of RFID

Barriers for RFID Development	%
High Adoption Cost	53%
Technical Issues (No unified standard, service providers not up to standard)	29%
Low Recognition	12%
Fierce Competition	6%
Total	100%



BROAD COVERAGE

FINDINGS

7 R&D Demand & Aspiration

In this section, we asked participants on their R&D demand and aspiration; their viewpoints towards the value of LSCM and finally, the government sponsored R&D program acceptance were examined.

7.1 Analysis on LSCM R&D Centre's Contribution on Economy

In this section, respondents were asked whether they agreed the contribution of LSCM R&D Centre. Among the 20 respondents, 18 provided information. It indicated that all of the 18 respondents believed the long-term goal of LSCM R&D Centre could contribute to strengthening PRD's economic competitiveness. The findings were summarized in the following table.

7.1a Table

Analysis of LSCM R&D Centre's Contribution on Economy

Contribution of LSCM R&D Centre	Number of Participants	%
Yes	18	90%
No	0	0%
N/A	2	10%
Total	20	100%

Furthermore, participants were asked if they were interested in participating in R&D projects. In a total of 20 respondents' provided information, 9 out of 20 (45%) showed interests in participating in the government lead R&D project. The findings were summarized in the following table.

7.1b Table

Analysis on Interests in Participating R&D Projects

Interests in Participating R&D Projects	Number of Participants	%
Yes	9	45%
No	4	20%
N/A	7	35%
Total	20	100%

Participants were also asked about their expectations from the Government in helping the industry in term of short-term and long-term. In a total of 20 respondents' provided information, 37% expected Government assist in policy support like industrial standard and regulation; it was followed by Finance Support (30%) and HR Support, for instance, Recruitment of Talented People. The findings were summarized in the following table.

7.1c Table

Analysis on Expectation from Government

Expectation from Government	%
Policy Support: Industry Standard & Regulation	37%
Financial Support	30%
HR Support: Recruitment of Talented People	19%
Market Intelligence and Communication Platform	11%
Education	4%
Total	100%



BROAD COVERAGE FINDINGS

7.2 Interested Areas on LSCM Roadmap

In a total of 15 respondents, they were asked to indicate the interested areas of LSCM R&D roadmap:

RFID Hardware & System

7 out of 15 (47%) participants indicated that they are interested in Theme 1 “Low Cost RFID Tag Manufacturing Techniques”.

Networking & Infrastructure Technologies

8 out of 15 (53%) participants indicated that they are interested in Theme 5 - In the infrastructure technologies track steers for low-barrier adoption of logistics I.T. with the approach of “On-Demand Technologies for Logistics Application Software Service Platforms”.

Applications & Decision Support Technologies

6 out of 15 (40%) participants indicated that they were interested in Theme 8 “Enabling Technologies for Mobile Logistics”.

7.2 Table

Interested Areas of LSCM R&D Roadmap

RFID Roadmap	Number of Respondents	%
RFID Hardware & System		
Theme 1 “Low Cost RFID Tag Manufacturing Techniques” is set on easing the cost issue of adoption and deployment for RFID.	7	47%
Theme 2 “RFID for Manufacturing and Packaging Industries” stresses on easy use of RFID for product manufacturers who need to tag product shipment with RFID.	1	7%
Theme 3 “RFID Testing and Qualification” targets for helping users to test and select appropriate RFID solutions to best fit their use.	1	7%
Theme 4 “RFID beyond Gen 2” is to push the envelope of current RFID technology to support practical applications for range, accuracy, security, memory and sensor requirements	6	40%
Networking & Infrastructure Technologies		
Theme 5 In the infrastructure technologies track steers for low-barrier adoption of logistics I.T. with the approach of “On-Demand Technologies for Logistics Application Software Service Platforms”.	8	53%
Theme 6 “Enabling Technologies for Enterprise e-Logistics Internetworking”, fostering the use of I.T. for logistics integration, addresses the common problem in industry for effective and efficient business process integration across enterprise boundary.	7	47%
Applications & Decision Support Technologies		
Theme 7 “RFID Systems for Specific Environments” will foster the development for RFID application systems for niche but critical requirements in common logistics operations.	2	13%
Theme 8 “Enabling Technologies for Mobile Logistics” encourages innovative applications for distribution and delivery which are mobile in nature.	6	40%
Theme 9 “Sensor-enabled Logistics Applications” will enable automation in cargo monitoring.	5	33%
Theme 10 “Positioning Technologies and Optimization for Asset Tracking and Monitoring” will add to the capability of real-time cargo tracking.	3	20%
Theme 11 “Enabling Technologies in Electronic Seal Based Logistics” participates in the contemporary e-seal standards development which is taking place actively not only in the global arena but also across the local border of Hong Kong and Shenzhen.	3	20%



BROAD COVERAGE

RECOMMENDATIONS

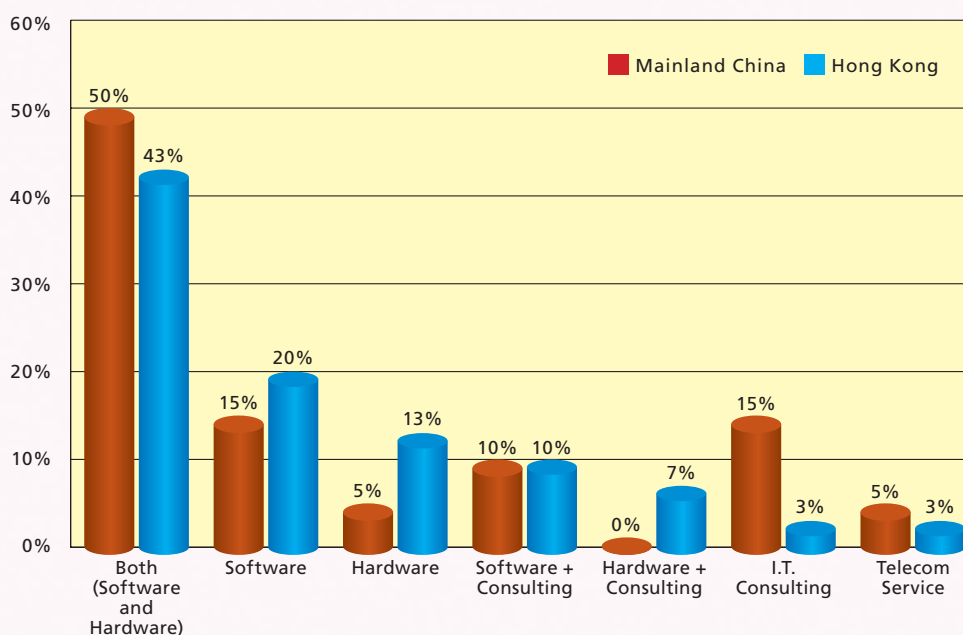
8.1 Comparison of the Key Findings with LSCM Market Intelligence Report (Issue 2)

The LSCM R&D Centre had published **LSCM Market Intelligence Report (Issue 2)** in October 2008 to share findings which were based on information collected from 30 I.T. companies. In this report, we look at a new set of findings from 20 respondents from mainland China. Some consistent views between the two sets of data were noticed and summarized.

Firstly, the profiles of the two groups of I.T. practitioners are similar, the majority of them are offering *Software and Hardware Solutions* to clients followed by *Software Solutions Only*.

8.1 Chart

Comparison of Business Nature between Respondents (Mainland China and Hong Kong)



While comparing the research findings with Issue 2, we noticed that the two groups of I.T. companies were sharing some common opinions. In analysis of the solutions which have been widely adopted in customer's business process, the rankings concluded from the two groups were coherent: ERP, WMS, MRP and SCM as shown in the following table.

8.1a Table

Comparison of Widely Adopted Solutions

Solutions	Mainland China	Hong Kong
ERP	30%	33%
WMS	25%	31%
MRP	20%	23%
SCM	15%	13%
Others (CRM, IPA Chips)	10%	-

When asked the challenges in applying I.T. solutions for their customers, similar situation as indicated by the two groups include: *Limited budget*, *Shortage of skilled I.T. People* and *Project Management Problems*. Findings are summarized and compared in the following table.



BROAD COVERAGE RECOMMENDATIONS

8.1b Table

Comparison of Perceived Challenges in Applying I.T. Solutions for Customers

Challenges for I.T. Applications	Mainland China	Hong Kong
Limited Budget from the Customers	58%	74%
Shortage of Skilled I.T. People from Customers or Internal	41%	50%
Project Management Problems	39%	43%
Lack of Industry/Government Support	33%	37%
Data Integration with Customers' Current System	29%	32%

We also observed that among various technologies that being used by respondents in developing solutions or products, the adoption rate of wireless related technology was relatively high.

8.1c Table

Usage of Wireless Related Technology for Solutions or Products

Wireless Related	Mainland	Hong Kong
Wireless LAN	48%	51%
Mobile Network (e.g. GPRS, HSDPA)	33%	42%

Although the two sets of data shared certain consistent findings, there were still some variances. For instance, the respondents from mainland China ranked *Web Service, SaaS* as the most widely used technologies by their customers, whereas the Hong Kong respondents expressed that adoption of such technologies was as low as 6%. However, the adoption rate of Barcode/RIFD among mainland I.T. companies' clients was 13% only whereas Hong Kong's was more than a double (32%). Findings are compared in the following table.

8.1d Table

Comparison of Widely Adopted Technologies

Technologies	Mainland	Hong Kong
Web Service, SaaS	30%	6%
Data Interchange Technology: EDI/XML	26%	28%
Wireless Technology, e.g. Wi-Fi, GPRS, EDGE, UMTS	21%	23%
Barcode/RFID	13%	32%
Positioning Technology, e.g. RTLS, GPS	6%	11%
Others (Information Security/ 2-Dimensional Code)	4%	-



BROAD COVERAGE RECOMMENDATIONS

In addition, the two groups of respondents showed different business focus on I.T business categories. For instance, in the Enterprise Business Solutions category, mainland I.T. companies showed more focus on *Management Information System*; whereas Hong Kong put more focus on *Customer Relationship Management*. Findings are compared in the following table.

8.1e Table

Comparison of Business Focus

I.T. Business Categories	Mainland China (Respondent's Focus)		Hong Kong (Respondent's Focus)	
Enterprise Business Solutions	Management Information Systems	17%	Customer Relationship Management	15%
Operation Automation Solutions	Automated Workflow & Authorization Solutions	10%	Inventory Management Solution	12%
E-Business Solutions	E-Commerce (B2B, B2C, etc)	31%	E-Commerce (B2B, B2C, etc)	30%
Office Automation Solutions	Back Office Management	45%	Document Management Solutions	60%
Hardware/Consumable Products	Others	35%	RFID Interrogator/Tags	33%
Platform/Services	Marketplace	38%	Track and Trace	52%

While analyzing on which business process should adopt I.T. from their customers' perceptive, respondents from mainland China expressed that their customers would need to adopt technology in management whereas close to a quarter of the Hong Kong respondents regarded that their customers would adopt I.T. in Warehouse Management.

8.1f Table

Comparison of Business Process Should Adopt I.T.

Business Process	Mainland China	Business Process	Hong Kong
Management	27%	Warehouse Management	22%
Office Automation	9%	Sales	13%
Sales and Marketing	9%	Logistics	13%
Logistic Management	9%	Inventory Management	9%
RFID	9%	Facility Management	6%



BROAD COVERAGE RECOMMENDATIONS

8.2 Current Position & Projected Position - Strategic Position Map

I.T. solution provider or a value-added reseller (VAR) should comprehensively handle the project needs of their customers from concept to installation through support. This process normally involves studying the client's current infrastructure, evaluating the client's needs, specifying the mix of manufacturers' hardware and software required to meet project goals, installing the hardware and software at the client's site(s). I.T. companies need to know what their customers really need in terms of supply chain (SC) situation and identify their current position and projected position for further improvement.

In this study, the findings suggested that the respondents' customer I.T. knowledge is relatively low. In Section 4.16, I.T. respondents have been prompted to give opinion from a solution provider's view and problems or pain points of I.T. adoption faced by their target customers. The findings indicated that *Weak Technology Knowledge* was among the top ranked opinion.

From an optimistic perspective, that is a good potential for market growth, given PRC economy is growing in a promising pace. I.T. companies should take the initiatives to assist their customers to explore the benefits of adopting I.T. so as to enhance competitiveness. In fact, globalization has come to the new era on the reformation in business. Companies have been seeking the strategies to improve the operation efficiency and collaboration with supply chain partners. To this end, companies have been seeking the strategies for technologies adoption to improve the internal performance and to streamline the processes with both upstream and downstream partners. Emerging information technology in addition to production technology plays as the main driving force. In order to form a competitive strategy, I.T. companies should help their customers to find the current position, decide the projected position, and adopt the technology to achieve the goal. A framework of strategy position map (Diagram 8.1) is used to locate, set and move company's strategy position based on the adoption of both the information technology and product technology. The improvement for supply chain management can be made in two aspects - *information* and *product*. The stages for *information* technology are: informative, interactive, and integrated. The informative stages is about the intra-company information availability; the interactive stage focuses on the inter-company information exchange; and the integrated stage is mainly concerned the coordination of information processing on the chains.

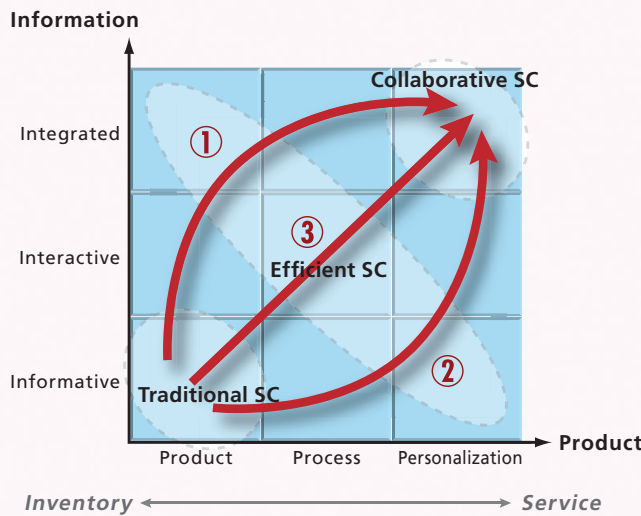
On the other hand, the stages for product technology are: product, process, and personalization. The product stage is about the product related issues, including design, storage, etc.; the process stage is to streamline the processes to ship, distribution, or forward the product; the personalization stage is concerned the addictiveness, responsiveness and customization. The main focus of product stage is inventory management and personalization stage is more into the service management.

With reference to the solutions and technologies adopted widely in their customers' business operation, it is found that ERP was the most common solution adopted by the respondents' customers (30%); whereas SCM was relatively low in adoption, accounted only for 15% (*Detailed findings refer to Section 4.15*). Likewise, the adoption of advanced technologies like RFID was also low as 13% (*Section 4.14*). From that perspective, the current position of the respondents' customers is located between Traditional Supply Chain and Efficiency Supply Chain shown in Diagram 8.1.



BROAD COVERAGE RECOMMENDATIONS

8.1 Diagram
Types of Supply Chains



8.2 Diagram
Strategy Position Map

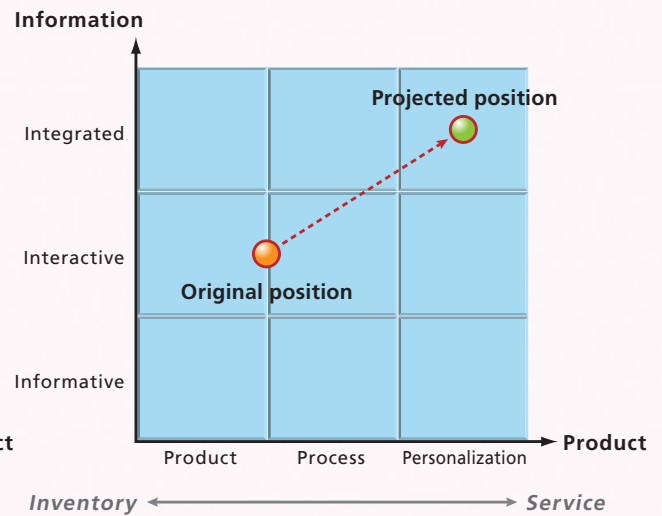


Diagram 8.1 demonstrated 3 different supply chain (SC) positions which have unique features.

(1) *Traditional SC Relationship*. A traditional supply chain is asset-based, relatively customer insensitive and slow in adapting to new business conditions. Some firms focus on upstream activities including sourcing, manufacturing and inbound logistics and others manage downstream activities such as outbound logistics, branding and sales. Most importantly, the sequential conduct of activities forced each partner to focus on its own business and interactions with partners were based on minimal exchange of information or decision-making based on past information. This resulted in reactive solutions to market conditions since their business processes operated in silos, making it difficult to achieve supply chain efficiency.

(2) *Building Efficient SCs*. In addition to optimizing the internal business functions to deliver products and services in a timely and efficient manner, firms take the initiative to exchange product and logistics information through information technology. The streamlining of individual supply chain processes did lead to efficiencies but the gains were internal and the supply chain still did not maximize the efficiency throughout the chain for activities.

(3) *Collaborative Supply Chain Integration*. Firms design their supply chain to manage one collaborative process rather than multiple processes and this integration is important to ensure uniformly amongst the three partners in their supply chain network. Information is the key factor which could ensure such uniformity at all levels but it needed to be accessible to all key parties.

It is recommended that I.T. companies should encourage the customer to move from Traditional SC to Collaborative SC and I.T. can play an even more important role as enabler for their customers. On the other hand, the drive also can come from the customers' side since they want to improve their SC performance. All in all, I.T. companies should enhance their own position in order to make sure they are capable to serve the customers.



BROAD COVERAGE RECOMMENDATIONS

8.3 Strategically Undergoing the Transformation

The I.T. respondents' projects are mostly medium-sized (Section 3.3). 70% of the project lasts for 6-12 months (Section 3.4), which implies the projects are mainly for customers' intra-organization purpose. EDI is among the highly adopted technology, which accounted for 26% (Section 4.14). This shows that probably there will be more inter-organization I.T. projects in the future. In addition, it is also noticed that the SCM part is still low (15%, Section 4.15). The summary implies that most of the customers are still in *Informative* stage, the demand is moving to *Interactive* whereas *Integrated* is still far away.

In fact, I.T. brings the competitiveness and treated as a kind of valuable logistic resources. The sole and joint uses of I.T. bring many benefits for companies and make them to be more competitive in the strategic planning. By suggesting the customers shifting to the desired position, the following five guidelines on moving towards the desired position should be taken into consideration.

Balanced: The companies should keep and move toward the balanced position between information and production technology.

Economic: It would be cost-effective for the move along the diagonal line than the straight line.

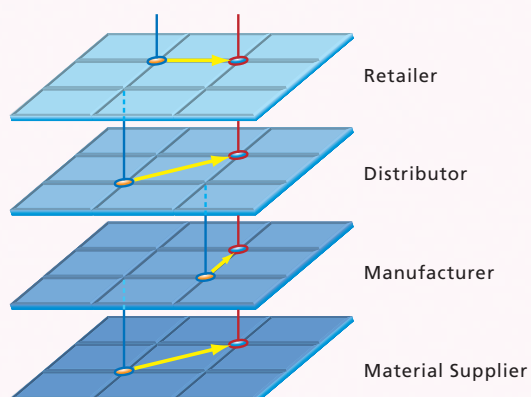
Progressive: The strategic move should be progressed one stage for each step on the strategic positioning map.

Dynamic: The company should keep on forming and revising the strategic move to adapt to the changes in the dynamic environment.

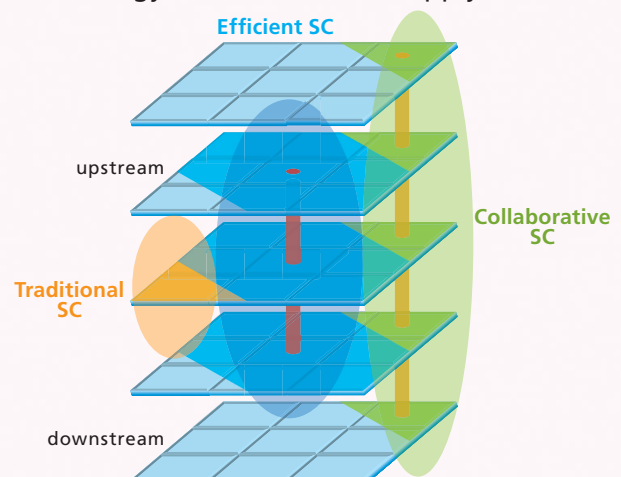
Streamlined: The strategic move should be aligned with that for partners, especially immediate upstream and downstream partners.

The following two diagrams help to elaborate the distinctive natures and benefits by transforming to Collaborative SC position. At the beginning, the firms start with the traditional supply chain by only focusing on internal linkage and integration. At this stage, the companies independently adopt and implement the strategy, for example, database installation and development of inventory control mechanism (Diagram 8.3 and 8.4).

8.3 Diagram
Strategy Coordination on Supply Chain



8.4 Diagram
Strategy Coordination on Supply Chain





BROAD COVERAGE RECOMMENDATIONS

Later, the firms convert to efficient supply chain by further enhancing the I.T. capability for interacting with other players and calibrating the business concentration on streamlining process and cooperation. At this stage, companies need to work with their upstream and downstream neighbors to decide the suitable strategy. Sometimes they also get the help from the service providers to augment the linkages with the business partners. Finally these companies try to transform to a collaborative supply chain by moving to a more competitive position. The focus at this stage is on the further deepening the relationships with partners for service oriented solution and joint decision. The collaboration scope also extends to the whole chain as show in Diagram 8.4.

Once identified the customers' current position on the strategy map, next step is to decide the projected position on the strategy map and formulate the strategy on moving to the position (Diagram 8.2). There are two levels of strategies that the firms should consider: *Macro* level and *Micro* level. The *Macro* level strategy is from the perspective of supply chain level moved to; whereas *Micro* level strategy is from the perspective of the individual firm.

The position move of the supply chain can be very straightforward that eventually most supply chains ideally evolve to collaborative supply chain. There are three possible moving paths to achieve the goal. The path selection is dependent on industrial characteristics and firm conditions. The first path is I.T. oriented approach that firms firstly focus on I.T. adoption to *streamline* the information flow to improve the internal operational efficiency, then gradually to *coordinate and consolidate* the business processes. After that, the third path is to *prioritize* the changes on collaboration and service-centered before adopting I.T. to gradually improve the cooperation. The second path is a balanced approach to take into accounts both information flow and product flow. Similarly, each firm may also take the step to enhance its strategic position in the supply chain. The firm can focus on I.T. adoption to enhance the information processing, exchange, and consolidation to move up in Figure. On the other hand, the firm might focus on the synchronization and coordination of product flow to move right in Figure. Of course, the firm might also take into account both concurrently.

In summary, the strategy of supply chain management can be viewed from two aspects - level and orientation. The level aspect includes macro (chain) view or micro (firm) view; the orientation aspect includes technology direction and operation direction.

8.4 Propose the Right Solution to Customers - Technology Component

I.T. adoption helps the transformation for logistics companies through streamline of information and operation, enhancement customer satisfaction, and differentiation in strategic move. Also, I.T. adoption is necessary for logistics companies to serve or even enable the client companies to move to a more competitive position. I.T. companies need to know what their customers really need in terms of SC situation and provide suitable solution to increase operation efficiency and competitiveness.



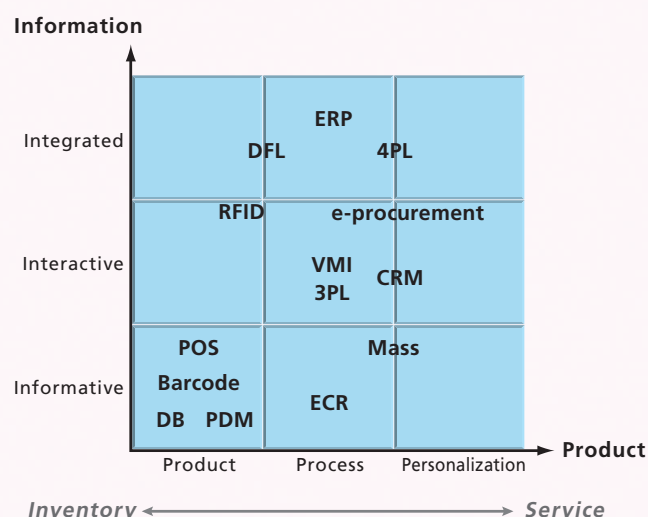
BROAD COVERAGE RECOMMENDATIONS

Diagram 8.5 locates different solutions along the strategic position map, each solution can achieve unique benefits to customers on specified needs. It can be regarded as a tool box for I.T. professionals to offer distinctive deliverables to their customers. In addition, to effectively improve project management efficiency and to lessen the failure rate, it is crucial for the management to judge what, when and how to structure and allocate resources to the relevant projects. Weill and Broadbent developed an I.T. Portfolio Management Model to help management match I.T. investments to strategic objectives. The model identified 4 broad classifications of I.T. investment: Transactional, Informational, Strategic and Infrastructure. By realizing the 4 broad classifications, it can assist management to identify the project type, resources required, projected returns and potential risk level. In addition, management should take into account of two critical issues - *based-on components* ensure the readiness for adoption. For example, some I.T. components serve as infrastructure to other I.T. systems. The *paired-with components* complement to the adopted components for mutual support [1].

To further elaborate the concept by using two extremes based on two aspects - high or low level and macro or micro view. ERP system focuses on high-level adoption (integration) and micro-view (intra-organization) and RFID focuses on low-level (standardization) and macro-view (Inter-organization). The ERP adoption normally assumes the readiness of I.T. infrastructure; otherwise, either the adopting companies may suffer either the dramatic changes or under-usage result [1].

In Section 6.21 and 6.22, while examining the perception of RFID from customers' viewpoint, the majority (60%) of the respondents' customers expressed that the current usage of RFID is low and regarded RFID adopted only in limited areas; only 20% of them regarded it could improve efficiency. On the contrary, the I.T. practitioners had a more positive perception which 42% of them regarded RFID could improve efficiency. The gap of perception for efficiency improvement of RFID between I.T. companies and users indeed reminds I.T. companies the importance of helping customers understand the benefits of I.T., especially the emerging I.T. like RFID. The RFID adoption should be combined with other system adoption, such as middleware, database, logistic systems, or ERP in order to get the full benefits.

8.5 Diagram
Examples of Technology





BROAD COVERAGE RECOMMENDATIONS

With reference to Section 2.33 while the business mode of the respondents are analyzed, it is noticed that Development accounted for 90% (Self development: 25% + Self development + resell: 65%). This implies that, compared with I.T. vendor, I.T. companies need to be very careful for the future direction since the overhead is quite high. In Section 6.11, it further indicated that R&D investment is high which 40% of the respondents invest over 50% (Current I.T. investment % to Revenue) on R&D investment.

In addition, it is noteworthy to find out that the project failure rate of the respondents is quite low as 70% of the respondents indicated that their failure rate is less than 10% (Section 4.51). The appropriateness solution is taken care well in this stage (Section 4.4 and 4.52). However, companies should be ready for helping customers to move to interactive or integrated stage which the project successful rate may not be as high as now.

Reference

- [1] Yen, Benjamin. Framework of the Strategy Formation for Technology Adoption in Supply Chain Management, The University of Hong Kong.



GLOBAL / CHINA WATCH



1. Technical Guidance issued by the RFID Standardization Work Group, Ministry of Industry and Information Technology

In order to accelerate the development of RFID standards of China, the RFID Standardization Work Group (RFID SWG) authorized by the Ministry of Industry and Information Technology has decided to announce research results of standardization submitted by all sub-groups. They will be released in the format of technical guidance documents and be timely distributed within the Group. This will not only enhance communication and coordination among each sub-group, and also allow the results to be shared, tested and revised. After deliberation, the first document named as RFID Standardization Work Group Technical Guidance [2008] 001 is scheduled to include:

- TD 0001 RFID 13.56MHz Basic Electric Characteristics
- TD 0002 Specifications of RFID 13.56MHz Read/Write Device
- TD 0003 Physical Characteristics of RFID Tag
- TD 0004 Technical Specifications of Internet-based RFID Tag Information Enquiry Service
- TD 0005 Naming Standard of Products and Service Code using RFID Technology
- TD 0006 Information Processing Products and Service Identification Standard Specifications
- TD 0007 Technical Specifications for RFID Positioning and Discovery Services based on Decimal Network
- TD 0008 General Technical Requirements of Dangerous Chemical Gas Cylinder using RFID Technology
Part I: Standard of Technology Application
- TD 0009 General Technical Requirements of Dangerous Chemical Gas Cylinder using RFID Technology
Part II: Encoding of RFID Gas Cylinder
- TD 0010 General Technology Requirements of Dangerous Chemical Gas Cylinder using RFID Technology
Part III: Special Requirements of RFID Reader

2. AIM China RFID Group conducted National Standardization Meeting on "RFID (Series) General Technology Standardization"

On June 19, 2008, the RFID Group has convened the third national standardization meeting on "RFID (Series) General Technology Standardization" in Beijing. The group members discussed the second draft of national standardization, "RFID General Technology Standardization", about passive, semi-passive and active tags. They further elaborated the definitions of jargons used in standardization and discussed on each technical data and testing method. At the end of the discussion, revision methods and work distributions have been confirmed, and the next phase of working plan has been concluded.



3. Updates on the progress of the RFID Standardization Work Group

On 4 June 2009, the RFID SWG convened its first meeting for 2009, at which Madam Zhang Qi, leader of the Group spoke while the seven sub-groups reported on the progress of their work in the past year and the focus of their work in 2009. The meeting was practical and effective. The key progress of some of the sub-groups are described as follows:

(1) Tags and Readers Group:

The revision of 3 guiding documents were completed after 11 discussions were held in 2008 that focused on the physical characteristics of tags, the basic electrical characteristics of 13.56MHz tags and the standards for 13.56 MHz reading devices. The Group is presently working on the testing methods for the three above and the standards for 800-900MHz readers.

(2) Frequency and Communication Group:

The 24 member units held four meetings in 2008 which put forth the "Measures for the Administration of the Technology Proposals of the Frequency and Communication Group of the RFID Standardization Work Group (Draft)," requesting that conditions and results of computation or simulation be provided in the "Implementation Method and Plan" of a proposal for third-party verification. The Group has been actively conducting research on standardization and by the end of 2008 the draft requests for opinions of four standards were completed and passed. The Group also began working on new standards and suggested an overall framework for 840-845MHz air interface; it also completed a research study titled "Air Interface Parameters and Testing Methods for RFID Physical Models".

(3) Data Structure Group:

Participation in the drafting of standards and academic exchanges: the drafting and application of RFID standards for the logistics industry; the drafting and application of RFID standards for businesses; the drafting and application of network standards jointly by China Internet Network Information Centre and the Data Structure Group; seminar on the technology standards integration of 3G mobile communications and RFID; research on standards and applications of RFID in the livestock industry; research on standards and applications of RFID in foodstuff and counterfeit prevention; research on standards and applications of RFID in biological, aviation and pharmaceutical areas; research on standards and applications of RFID in other areas; exchanges of new technology and products with respect to hardware standards for RFID; exchanges of new technology with respect to software standards for RFID.

Application of data structure: successful development of the Military System for RFID and Barcodes Identification and Network; RFID and barcodes identification in food supervision and management application system; current research on the application of data structure in the full life span of a human being and standards research.



(4) Security Group:

The 19 members have been directed to conduct research in 7 directions, and they have produced over 20 technical proposals and research reports and two internal research projects have begun. With reference to different application environments (frequencies/tag types), 6 security proposals for tag and reader air interface have been proposed and developed (with proprietary intellectual property rights). Revision comments were given in respect of the relevant security standards and "Data Structure of RFID in Businesses". Four national standards proposals (general security technical requirements, wireless link security, tag security and reader security) have been submitted to the RFID SWG. In 2009 request for opinions on the above four proposals will be prepared and research on the test regime will begin, while verification of the tests of the standards (mock) and development of the examination platform (the security part) will also begin.

(5) Application Group:

In 2008 the Applications Group drafted a set of standards for RFID application, prepared the regional and local standards of "Electronic Identification Codes for Hazardous Chemical Cylinders" and the "Application Criteria for Electronic Identification for Hazardous Chemical Cylinders", organized the drafting of "Application Criteria for Electronic Ticketing Systems of Large-scale Urban Events (Exhibitions and Competitions)", took part in the technical research on code application in electronic tags in China, drafted a series of code technology standards, including the "Security Guidelines for RFID System," organized the drafting of the standard "Data Criteria for RFID-based Logistic Interaction System," and the RFID application standards in relation to hazardous chemicals, traffic and transportation, garment production lines and counterfeit prevention in wines and the likes. In 2009 the Group will complete in relation to RFID the drafting of two national standards and five industrial standards as handed down by the RFID SWG.



1. National Development and Reform Commission (NDRC) publishes the first batch of pilot sites for Informatization

To implement the Eleventh Five-Year Plan for the Informatization of the National Economic and Social Development and to accomplish the key missions of the relevant plans made thereunder, the General Office of NDRC has, through the document NDRC General Office Hi-Tech [2008] No. 618, issued the "NDRC's Notice of Pilots of Informatization for Organizations".

According to the requirements of the Notice, the relevant departments of various provinces and municipalities are to recommend typical pilot projects, which have already been making a start on the provincial level and achieved satisfactory results, to NDRC for listing as national pilot projects. After the initial selection and a question-and-answer assessment by experts, the first batch of pilot projects was released in late February 2009 by NDRC. There are 83 national pilot projects, of which 41 are of the e-business service category, 31 of public information resources and 11 of proprietary intellectual property rights and information technology application. Pilot project related to RFID applications are listed as follows:

- (1) Development of a special security vehicle management and control system based on RFID and visual identification for Nanjing Public Security Bureau, Jiangsu Province:

Using both RFID and visual identification, specific vehicles are installed with a "digitized standard information source" so that Nanjing will have a security vehicle management and control system that enables greater accuracy and prompt action in their fight against illegal vehicle-related behaviour, providing integrated management service for special security vehicle management in Nanjing.

- (2) Technical application of RFID in the tobacco industry by China Tobacco Zhejiang Industrial Co., Ltd.:

With the Company's flat pallets of cigarettes electronically tagged and RFID used in the delivery centres of 11 tobacco branch companies within the Province, such applications will be promoted to a dozen or so tobacco companies in Shanghai, Shenyang, Qingdao, Taiyuan and Shenzhen.

- (3) The RFID-based service platform for dynamic management of special equipment of Shandong Jinzhi Information Technology Co., Ltd.:

RFID technology is to be promoted for application nationwide to such special equipment as industrial gas cylinders, vehicular loaded gas cylinders, elevators, turbines, large-scale entertainment facilities and pressure tubes in a way that a RFID-based service platform is established for dynamic management of special equipment. Information services will be provided using the software-as-a-service (SaaS) model to users such as the units engaging in the use, maintenance, manufacture and examination of such equipment and regulating authorities of the same.



THE ADOPTION & APPLICATION OF RFID TECHNOLOGY IN RELEVANT INDUSTRIES IN CHINA

(4) RFID application by Qingdao Haier Group:

RFID electronic tagging technology will enable life-cycle management of household electrical appliances, which will cover manufacturing, inventory, logistics and transportation, sales, after-sale services and recovery. This will enhance the efficiency and visibility of an enterprise's electronic supply chain, allowing real-time tracking of product quality, reducing the management costs in logistics and after-sale services and enhancing an enterprise's competitiveness in the international market.

(5) RFID-based toll collection and single through-transit smart card of Guangdong Unitoll Collection Inc.:

With an electronic networked toll collection system and the successful application of an automatic through-transit toll collection, and using RFID technology, it is possible to achieve across the Guangdong networked highway toll collection, general open toll collection and through-transit between Guangdong and Hong Kong with a single smart card.

(6) RFID-based Intelligent Urban Traffic Management and Service of Chongqing Golden Cards Traffic Information Industry Co., Ltd.:

Through the construction of a support system for RFID-based automatic vehicle identification and with "Chongqing Traffic Information Card" as the carrier, the government will have the technical support and service for traffic management and fees collection and provide traffic information service and added-value service to vehicles.

(7) RFID application to pig farming in Sichuan by Sichuan Tongwei Co., Ltd. and Dingtian RFID Technology Co., Ltd.:

An information management system is to be created for the pig farming industry that enables full tracking of information from breeding, slaughtering to sale, provides basic data for policy formulation and implementation by the Government, allows financial and insurance institutions to provide information support to breeding businesses and farmers for insurance purpose, and provides true and accurate information to consumers on safe consumption of pork.

(8) RFID application for Guiyang Regional Logistics by Guizhou Gohigh Data Network Technology Co., Ltd.:

RFID technology is to be used in the logistic business to enable unified and interactive management of trucks, containers and forklifts, automated and visible management of such key logistic operations as receipt and dispatch of goods, yard planning and weighing, and enhanced logistic efficiency through information for optimized inventory cycle.

(9) RFID-based workflow revamping of on-land container operations by Tianjin (Port) Group Co., Ltd.:

RFID technology will be applied to the workflow of the Company to promote installation of China-made RFID equipment by container and logistics companies at the port, thereby realizing general RFID management of transport vehicles at the port and driving their application at the neighbouring ports.



THE ADOPTION & APPLICATION OF RFID TECHNOLOGY IN RELEVANT INDUSTRIES IN CHINA

(10) RFID application on the Sino-American international container route by the Shanghai International Port (Group) Co., Ltd.:

RFID, EDI and GPS are to be used on international container routes for real-time online monitoring of the whole container flow and the realization of compatible use of multi-standard RFID systems, thus formulating the draft ISO standard for "Reusable Multifunctional e-Seals."

(11) Application of RFID technology in the regional flow of foods by Aerospace Information Co., Ltd.:

By further improving the farmers' settlement card system, the integration of barn operation with information systems, and the functions of the food monitoring and deployment system, advancement will be seen in the application of RFID technology in food logistics.

NDRC has the following requirements in respect of the follow-up work on these national pilot sites: 1. Mobile e-businesses, electronic authentication services, e-business services of SMEs and contract-out services of trunk enterprise information systems should aim at an optimised service model, providing rich contents and reducing costs to service clients, and formulate short-term development plan, further improve their services and extend their service scope, thereby developing their own capabilities for professional and market-oriented services and deepening the application of e-businesses. 2. Develop such public interest pilot projects as new rural information services and credit information services to allow sufficient integration of resources for information sharing and nurturing of a mechanism for positive development cycles. Under the guidance of relevant government departments, short-term development plans are to be drawn up to strengthen their service capabilities and improve the quality and efficiency of their services. A service capability in the provision of public interest information is to be built up under government direction and market operation to meet the specific requirements of the businesses and the public, while ways are to be explored to effectively integrate the development of public interest information services with value added services. 3. Pilot RFID applications should aim at driving innovative RFID application and equipment and promoting the development of related industries. Application plans are to be prepared for the regions or industries concerned, so that application standard and management criteria can be established for perfecting the infrastructure and service platform. A management and operation system for joint facilities development and information sharing should be explored so as to increase social management, production efficiency and the ability for accurate control.



2. China-Made UHF RFID Readers successfully enter the International Markets

Major development is seen in the “RFID technology and its application”, a key and special project of the National Hi-tech Program (863 Program). The UHF RFID readers produced from the research of Sense Technology Co., a member unit of the Alliance in charge, have passed the mandatory certification for UHF RFID equipment as required by America’s FCC for entry into the American markets, the mandatory certification for UHF RFID equipment as required by Japan’s TELEC for entry into the Japanese markets, the certification of the EU for entry into the European markets and the mandatory certification of CM UHF RFID equipment as required by China’s Radio Regulatory Commission of MIIT for entry into the China market. Similar certification for UHF RFID equipment as required by Taiwan, Malaysia, the Philippines and Hong Kong are in progress.

The UHF RFID readers have attracted much attention of the international RFID industry. With its robust research capabilities and quality products, Sense Technology Co. establishes close partnership with international companies to promote RFID; and through such co-operation, it has taken part in many key overseas RFID projects, helping to drive China’s UHF RFID equipment into the high-end application markets overseas. The Company’s UHF RFID reading devices have already been successfully deployed in many key projects domestically and overseas, and almost ten thousand RFID readers and over a million of RFID tags are used in various industries. In terms of sales and export volume to the European and American UHF RFID markets, it leads other China-made similar products.

Now products based on the results of the project have already been used in vehicles in the United States, Mexico, the Philippines, Pakistan and the Republic of Malawi and their Customs Management Systems; and pilot work has also begun in the management of the production workflow at Japan’s Matsushita Electric Industrial and Mitsubishi Heavy Industries.



3. The State Leading Group Office of Golden Cards Project Coordination P.R.C. approves the establishment of the National Golden Cards Project RFID Interoperability Testing Centre

With the progress and development of the RFID pilot of the Golden Cards Project, great expansion is seen in the relevant industries, departments and regions, and the interoperability of RFID applications has become an issue of great concern. To ensure that the RFID equipment, software and RFID application systems of various suppliers can interoperate, more stringent tests of their interoperability becomes an important measure to take. The State Leading Group Office of Golden Cards Project Coordination P.R.C. therefore approves the China Electronic Standardization Institute (CESI) of MIIT to lead the establishment of the National Golden Cards Project RFID Interoperability Testing Centre to actively and securely promote the general application of RFID in various industries across China, take advantage of the strength of RFID technology, drive informatization and internationalization and strengthen the security management of information of RFID systems.

The Centre was officially opened on 22 April 2009 and testing activities also began with 9 domestic and overseas companies participating. Products tested include 18 tags, 13 readers, 3 protocols and 2 frequencies. Three pre-tests and 8 application field tests were carried out, and 883 tests were done in 5 days.

4. China 2009 International Smart Cards and RFID Exhibition & Conference A Success

With the strong support of the various ministries of the State Council and the first batch of 12 provincial and municipal pilot sites under the National Golden Cards Project, the China 2009 International Smart Cards and RFID Exhibition & Conference, organized by the State Leading Group Office of Golden Cards Project Coordination P.R.C., was held at Beijing Exhibition Centre from 3-5 June 2009. The State Leading Group Office of Golden Cards Project released the "Annual Report on RFID development in China 2008-2009" at the Conference. During the Conference, the fourth CJK Round Table Working Conference was successfully held, confirming four new international collaborative projects, and the 64 winning projects and units of the "2009 National Golden Cards Project Awards for Excellent Result" were announced. Key seminar topics include: application of mobile payment in mobile e-business, RFID application in the tobacco and wine industries, application of smart cards and RFID in food/pharmaceuticals monitoring, RFID application in traffic, applications in libraries, innovative development and applications in bank cards, RFID standards system and information security. With the guidance and support of the various commissions and departments, pilot provinces and municipalities and local and overseas industrial communities, this year's Exhibition has achieved great success.



APPENDIX A

DISCUSSION GUIDE – TECHNOLOGY

Background Information

- Company Name, job title and/or department
- Size of Company
 - ◆ No. of staff in Hong Kong, Mainland China and Overseas
 - ◆ No. of R&D staff/Any R&D department
- Year of Establishment
- Business Nature
 - ◆ I.T. Hardware

This sector includes following:

 - Company that produces hardware (including computer, network infrastructure components, and computer accessories), e.g. IBM, HP
 - Company that resells hardware to customer, e.g. JOS, Ingram
 - Company that provides value-added service on hardware e.g. JOS
 - ◆ I.T. Software

This sector includes following:

 - Company that develops software applications/ package, e.g. Microsoft, Oracle, IBM
 - ◆ I.T. Consulting/Services
 - System Integrator
 - Business/I.T. Consulting
 - Application Service (ASP, SaaS)
 - Platform Service (e.g. DTTN)
 - Other Service (e.g. hosting, managed service)
 - ◆ Both (Software and Hardware)

This section includes companies that fulfill requirements of hardware and software sectors.
 - ◆ Telecom Service Provider (e.g. 3, PCCW, Smartone Vodafone)

Section A:

Company Background/Competency

In this section, we ask participants what are their core business solutions or products.

- What kind of solutions or products is their main business focus?
 - ◆ Enterprise Business Solutions
 - Accounting Solutions
 - Business Intelligence/Decision Support Systems & Query/Reporting Solutions
 - Customer Relationship Management
 - Enterprise Resources Planning
 - Human Resources Management
 - Information & Knowledge Management Solution
 - Management Information Systems
 - Manufacturing Resource Planning
 - Point of Sales
 - Sales Force Automation Systems
 - Sales Order Processing & Fulfilment Systems
 - Others (Please specify)
 - ◆ Operation Automation Solutions
 - Automated Workflow & Authorization Solutions
 - Bar-coding, Identification & RFID Solutions
 - Distribution & Transportation Solutions
 - Freight Forwarding Management
 - Global Positioning System
 - Geographical Information Systems
 - Import/Export and Trading Systems
 - Logistics Management Systems
 - Inventory Management Solution
 - Ocean Forwarding Management
 - Procurement Management Systems
 - Property & Facilities Management Systems
 - Shipping Management
 - Warehouse Management Systems
 - Forecasting and Planning Solutions
 - Supply Chain Management
 - Fleet Management
 - Tracking and Management Devices
 - Others (Please specify)



APPENDIX A

DISCUSSION GUIDE – TECHNOLOGY

- ◆ E-Business Solutions
 - E-Commerce (B2B, B2C, etc)
 - Electronic Data Interchange Solutions
 - Enterprise Portal & Content Management Solutions
 - Payment Solutions
 - On-line Analytical Processing
 - Others (Please specify)
- ◆ Office Automation Solutions
 - Back Office Management
 - Document Management Solutions
 - Library Information Systems
 - Others (Please specify)
- ◆ Hardware/Consumable Products
 - RFID Interrogator/Tags
 - Barcode Reader/Printer
 - Point-of-Sales equipments
 - Packaging and labels
 - Telecommunication
 - Others
- ◆ Platform/Services
 - Marketplace (e.g. Alibaba, Global Source)
 - Track and Trace
 - Business Service
 - Telecommunication
 - Others
- What type of technology used for/in their solutions or products?
 - ◆ Auto-id Identification Technology
 - 1-D barcode
 - 2-D barcode
 - RFID
 - Others
 - ◆ Positioning Technology
 - GPS
 - RTLS
 - LBS (location-based service using mobile network)
 - ◆ Wireless Communication Technology
 - Wireless LAN
 - Mobile Network (e.g. GPRS, HSDPA)
 - Others (e.g. ZigBee, Bluetooth, TETRA, Mobitex)
 - ◆ Data Interchange Technology
 - EDI
 - XML (e.g. RosettaNet, UBL, ebXML)
 - Others
 - ◆ Service Architecture
 - Web Service and SOA
 - SaaS (Software as-a Service)/Software on-demand
 - Software Appliance
 - ◆ RDBMS
 - Oracle
 - SQL Server
 - Sybase
 - DB2
 - MYSQL
 - ◆ Business Intelligence
 - ◆ Development Platform
 - Java (J2EE and others)
 - Microsoft (VB, VC++, .NET framework etc)
 - LAMP (Linux + Apache + Mysql + Php/Perl/Pyhon) or WAMP (Windows + Apache)
 - Others (e.g. Python, C)



APPENDIX A

DISCUSSION GUIDE – TECHNOLOGY

In this section, depending on the real case, the following problems could be asked:

- Whether they are adopting one or more than one above technologies in the solution
- If not, whether they are planning to adopt them
- If not, why not to adopt?
 - ◆ Not relevant to the solution
 - ◆ Technical reason: e.g. not familiar with the technology
 - ◆ Financial reason: e.g. no budget to develop
 - ◆ Human Resource reason: e.g. no expertise
 - ◆ R&D capability
- If yes, what benefits got from the technology?
- What are your core solutions/products?
- What's the business mode (Re-sell or self-develop)?
- What's the brand of the solutions/products if they are doing reselling business?
- Does their company emphasize on R&D in the area of new technology application?
 - ◆ If no, why? Are they interested?
 - ◆ If yes, how much expenditure in terms of percentage the company spend on R&D and in which specific area
 - ◆ What's the mode of R&D (develop product by self or partner with others; who are their collaborating parties for the latter case)
- Have they encountered any difficulties with R&D partners or University? How?

Section B:

Target Customer/Industry Group

In this section, we ask participants who are their focus customers.

- Who are their main customers or specific industries (refer to the previous applications selected – Section A)?
- Which department or internal parties are their main users?
- Project size : project cycle, project budget and amount of project member (solutions focused)
- What business process adopts the solution (if the solutions selected in Section A are the generalized ones, then checklists should be provided for selection)?

Section C:

Portfolio Assessment

In this section, we ask participants how are the problems or concerns from the understanding of a technology solutions provider.

- From a solution provider's view, what are the problems or pain point of I.T. adoption faced by your target customer?

◆ Business Operation

This section is to find out the following facts:

- Currently, what business process adopts the least I.T. technology, such as RFID, software application?
- Currently, what business process heavily relies on I.T. technology?
- What business process should adopt I.T., but not?
- What is the reason behind?

◆ Technical Perspective

This section is to find out the following facts:

- What technologies have been widely adopted in the customer's business process?
 - + Barcode/RFID
 - + Wireless Technology, e.g. Wi-Fi, GPRS, EDGE, UMTS
 - + Web service, SaaS
 - + Positioning Technology, e.g. RTLS, GPS
 - + Data Interchange Technology: EDI/XML
 - + Others
- What solutions have been widely adopted in the customer's business process?
 - + WMS
 - + SCM
 - + ERP
 - + MRP
 - + Others (Please specify)
- Human Resource Perspective
- Finance Perspective (e.g. budget, ROI)
- External Factors (e.g. Government Regulation, Competition)
- Others (please specify)



APPENDIX A

DISCUSSION GUIDE – TECHNOLOGY

- When would clients decide to enhance or upgrade their technological capabilities and customer offering, what are the most important motivating factors?

Please rate the selected items in terms of the degree of importance.

(1 = Less important; 5 = More important)

- ♦ Improves operational efficiency/productivity
- ♦ Improves customer service
- ♦ Improves competency
- ♦ Direct customer request
- ♦ Reduces labor costs
- ♦ Improves data quality
- ♦ Improves decision making
- ♦ Helps manage the operation
- ♦ Saves time
- ♦ Clear ROI
- ♦ Reduces human error
- ♦ Pressure from competitors
- ♦ Industry Trend
- ♦ Enhances cooperation with business partner (data/information sharing)
- ♦ Others (please specify)

- Please rank the following concern areas on an I.T. application from the customers' perspective they perceived:

Rank the following options from 1 to 6 and explain the highest rank

(1- Highest rank, 6 - Lowest rank)

- ♦ Price
- ♦ People
- ♦ Technology
- ♦ Time
- ♦ Capability of solution vendor
- ♦ Solution Appropriateness

In this section, we ask participants how they think about their current solutions or products could cope with customers' needs.

- How to maintain or enhance the relationship with customer through the service provision? Please rate the below factors in terms of the importance.

(1-Least important; 5 – Most important)

- ♦ Appropriate Solutions
- ♦ Professional solution consulting
- ♦ Innovative technology/solution
- ♦ Successful implementation of solution
- ♦ Low price
- ♦ Short project cycle
- ♦ Good post-sales service
- ♦ Personal Relationship with customers

- Do you mind telling us whether they had experience on project failure?

- ♦ If answer is yes or no failure experience, go on the next question.

- ♦ If answer is no, the following question could be asked:

- failure rate
- reasons for failure
 - + solution appropriateness
 - + bad project management
 - + reluctance of customer/user
 - + others

- Which area is the best part of their products/solutions in terms of the customers' satisfaction (refer to the products or solutions provided)? Please rate the chosen products/solutions in terms of the satisfaction.

(1-Less satisfaction; 5 – More satisfaction)

- Which area can be further improved in order to enhance the customers' satisfaction? Please rate the selected items in terms of the urgency to improve.

(1-Less urgent; 5 – More urgent)

- ♦ improves time management of service delivery
- ♦ pricing
- ♦ better after sales services
- ♦ better technology alternatives with less constraints
- ♦ others (please specify)



APPENDIX A

DISCUSSION GUIDE – TECHNOLOGY

Section D:

Application Barriers & Concerns

In this section, we ask participants what are their main concerns and difficulties in applying their current products/solutions to their customers.

- What is the biggest challenge that your company is facing while applying current solutions to customer?
Please rate the selected items in terms of the degree of challenge.
(1 = Less challenging; 5 = More challenging)
 - ♦ data integration with customers' current system
 - ♦ limited budget from the customers
 - ♦ difficult to cope with rapid technological changes and business environment
 - ♦ shortage of skilled I.T. people from customers or internal
 - ♦ lack of industry/government support
 - ♦ complexity of application software
 - ♦ shortage of appropriate technology or solutions
 - ♦ supply issues for reseller
 - ♦ domain knowledge of solution vendors
 - ♦ project management problems
 - ♦ others (please specify)

Section E:

(I) Industry trends/characteristics

In this section, we ask participants how they think about the technology trend in the future and the impact from the trend.

- What is the trend of their technology products or solutions in future
- What is the future development plan of the technology solutions/products to cope with the trend
- How uniqueness of the solutions/products they currently offer
- Any possible technology substitute in the market now or in the foreseeable future
- What is the future trend of their customers' business process related to the solutions/products offered
- Would they think the focus of R&D of technology development can help on the above issues

(II) RFID Perception

In this section, we ask participants about their perception of RFID technology and its application.

- How do their customers think and perceive about RFID technology and its application in their own industries/companies
- How do they think the RFID application from the I.T. industry view
- What are the barriers to the application of RFID technology
- How RFID to become popular and how long does it take in your opinion? What and any plan to make their existing application to be RFID enabled in the future?

Section F:

R&D Demand & Aspiration

In this section, we ask participant what industry/government support are needed in I.T. adoption.

- Do you have any expectation for government/R&D Centre in helping the industry in term of short-term & long-term?

Show LSCM's 2008 R&D Roadmap for participant to comment

- In which areas of LSCM R&D roadmap are you interested in? And what other key technology initiatives would your company is interested?
- Do you think the function and long-term goal of the LSCM R&D Centre contributes to strengthening PRD's economic competitiveness? If not, why?



APPENDIX B

ORIGINAL TEXT OF “CHINA RFID STANDARDIZATION DEVELOPMENT”

中国RFID标准化发展

原文：中国RFID产业联盟

(一) 工信部RFID标准工作组发布技术指导文件

为加快推进我国RFID相关标准的制修订工作，工业和信息化部RFID标准工作组经请示部主管业务司局同意，决定把工作组内各专题小组提交的相对成熟的标准研究成果，以技术指导文件的形式及时在工作组内部发布，以利于成果的及时共享、试行和测试修订，加强各专题小组之间的沟通与协调，发挥已有研究成果的指导作用。经审议通过第一批电子标签标准工作组技术指导文件[2008]001号：

TD 0001 射频识别 13.56MHz 标签基本电特性

TD 0002 射频识别 13.56MHz 读/写器规范

TD 0003 射频识别 标签物理特性

TD 0004 基于互联网的电子标签信息查询服务技术规范

TD 0005 基于射频技术的用于产品与服务代码域名规范

TD 0006 信息处理产品和服务数字标识格式规范

TD 0007 基于十进制网络的电子标签信息定位查询与服务发现技术规范

TD 0008 危险化学品气瓶标识用电子标签通用技术要求 第1部分：应用技术规范

TD 0009 危险化学品气瓶标识用电子标签通用技术要求 第2部分：气瓶电子标识代码

TD 0010 危险化学品气瓶标识用电子标签通用技术要求 第3部分：读写器特殊要求

(二) AIM China射频标签课题组召开制定《射频标签（系列）通用技术规范》国家标准课题的会议

2008年6月19日射频标签课题组在北京召开了制定《射频标签（系列）通用技术规范》国家标准课题第三次会议。会上课题组成员分别对无源、半无源和有源标签的《射频标签通用技术规范》国家标准草案的二稿进行讨论，对标准中的术语定义进一步推敲，对各项技术指标和测试方法进行了逐项讨论。最终确定了修改方法及分工和下一步的工作计划。

(三) 工信部电子标签标准工作组情况

2009年6月4日工信部电子标签标准工作组召开了2009年度首次工作会议。工作组组长张琪司长到会讲话，七个专题工作小组分别汇报了一年的工作进展和2009年度的重点工作、会议务实、取得了实效。以下是部分专题工作组的主要进展。

(1) 标签和读写器组：

2008年经过11次讨论，针对标签物理特性，13.56MHz标签基本电特性和13.56MHz读写设备规范，修改完成了三个指导性文件。标签和读写器组目前正在起草以上三项的测试方法和800—900MHz的读写器标准。



APPENDIX B

ORIGINAL TEXT OF “CHINA RFID STANDARDIZATION DEVELOPMENT”

(2)频率和通信组：

24个成员单位08年开了四次会议，提出了《电子标签标准工作组频率与通信组技术提案管理办法（草案）》，要求在提案“实现方法和方案”中提供计算或模拟的条件和结果，供第三方实现验证。该组积极开展标准化的研究工作，在2008年底完成了4个标准征求意见稿的制订，并获得通过。开展标准创新工作，提出了840-845MHz频段空口标准的整体框架；介绍了《RFID物理模型空口参数与测试方法》为题的研究报告。

(3)数据格式组：

参与标准起草和学术交流：交通部物流行业电子标签标准起草及应用；商务部商务领域电子标签标准起草及应用；互联网信息中心与数据格式组合作起草网络架构标准及应用；3G移动通信与电子标签融合标准技术研讨；牲畜行业电子标签标准研讨、应用；食品、防伪领域电子标签标准研讨、应用；生物、航空、医药领域电子标签标准研讨、应用；其他领域电子标签标准研讨应用；电子标签硬件标准新技术与新产品交流；电子标签软件标准新技术交流。

电子标签数据格式应用：研制成功《军用电子标签与条码同码识别与网络》系统；电子标签与条码同码识别食品监管溯源与管理应用体系；正在研究人类全生命过程中数据格式的应用及标准研究。

(4)信息安全组：

19个成员分为7个方向开展研究工作，提出了技术提案和研究报告等20余份；开展内部研究项目2个；按应用环境（频率/标签类型）不同，提出并形成标签和读写器空中接口安全方案6个（具有自主知识产权）。针对相关安全规范提出修改意见，针对《商务领域电子标签数据格式》提出修改意见。向标准工作组提交国家标准计划4份（通用安全技术要求、无线链路安全、标签安全、读写器安全）。2009年将形成上述4个征求意见稿；开展测试规范的研究；同步开展标准试验（仿真）验证和检测平台（安全部分）工作。

(5)应用组：

2008年应用组起草了一批标签应用标准；制订了《危险化学品气瓶电子标识代码》、《危险化学品气瓶电子标识应用规范》二项区域性地方标准；组织起草了《城市大型活动（会展、赛事）电子票务系统应用规范》；参与我国电子标签应用密码技术研究，起草了包括《电子标签（RFID）系统安全导则》等一系列密码技术标准；组织起草《基于RFID的物流信息交互系统数据规范》标准；组织了包括RFID在危险化学品、交通运输领域、服装生产线以及酒类等物品防伪等应用标准的起草工作。2009年将完成工作组下达的RFID二项国家标准、五项行业标准的起草工作。



APPENDIX C

ORIGINAL TEXT OF “THE ADOPTION & APPLICATION OF RFID TECHNOLOGY IN RELEVANT INDUSTRIES IN CHINA”

我国相关行业对RFID技术的采纳与应用情况

原文：中国RFID产业联盟

(一) 国家发改委公布第一批国家信息化试点名单

为了贯彻落实《国民经济和社会发展信息化“十一五”规划》及相关子规划提出的重点任务，国家发展改革委办公厅以发改办高技[2008]618号文发布了《国家发展改革委办公厅关于组织开展信息化试点工作的通知》。

按照通知要求，各省区市和相关部门在先行启动了省级试点工作基础上，向国家发改委推荐了一批实施效果较好的省级试点典型材料，期望列入国家级试点。经过初选、专家答辩评选等过程后，国家发改委于2009年2月底正式公布了第一批国家信息化试点名单。该批国家级试点共83项，其中电子商务服务类41项，信息资源公益性开发类31项，自主知识产权信息技术应用类11项。射频识别技术应用类的信息化试点名单如下：

1. 江苏省南京市公安局基于RFID和视频识别的南京特种车辆治安防控体系建设。该项目拟通过采用RFID和视频双基识别技术，为特定车辆配装“汽车数字化标准信源”，建立南京特定车辆治安防控体系，提高打击涉车不法行为的精确度和及时性，为南京地区特定车辆治安提供综合管理服务。
2. 浙江中烟工业有限责任公司烟草行业射频识别技术应用。该项目拟在浙江中烟工业有限责任公司卷烟联运平托盘电子标签应用和省内11家烟草分公司配送中心RFID应用的基础上，向上海、沈阳、青岛、太原、深圳等十余家烟草公司推广应用。
3. 山东金质信息技术有限公司基于RFID的特种设备动态管理服务平台。该项目拟在全国工业气瓶、车载气瓶、电梯、锅炉、大型娱乐设施、压力管道等特种设备领域推广应用RFID技术，构建基于RFID的特种设备动态管理服务平台，以SaaS模式向特种设备使用、维保、生产制造、检验单位、监管部门等用户提供信息服务。

4. 青岛市海尔集团公司射频识别技术应用。该项目拟基于RFID电子标签技术实现家电产品的全生命周期管理，包括生产制造、仓储、物流运输、销售、售后服务和回收环节，提高企业数字化供应链的效率和可视性，实现产品质量的实时可追溯性，降低企业物流、售后等环节的管理成本，增强企业在国际市场的竞争力。
5. 广东联合电子收费股份有限公司基于射频识别(RFID)技术的公路联网收费及不停车收费一卡通应用。该项目拟基于广东省公路电子联网收费系统、电子不停车自动收费系统的成功应用，通过应用射频识别技术，实现全省高速公路联网收费、普通开放式收费公路电子收费和粤港电子不停车收费一卡通行。
6. 重庆城投金卡交通信息产业有限公司基于RFID技术的城市智能交通管理与服务。该项目拟通过建设基于RFID技术的车辆自动识别支撑系统，以“重庆交通信息卡”为载体，为政府交通管理、规费征收提供技术支撑和服务，并提供交通信息服务和车辆增值服务。
7. 四川省通威股份有限公司、鼎天电子标识技术系统有限公司四川生猪产业射频识别技术应用。该项目拟基于RFID技术，建立生猪产业从养殖、屠宰到销售全过程信息追溯的信息管理系统，为政府政策的制定和执行提供基础数据，为金融机构向养殖企业、农户投保提供信息支持，为最终消费者吃上放心肉提供真实、准确的信息。
8. 贵州省大唐高鸿数据网络技术股份有限公司贵阳地区物流领域RFID技术应用。该项目拟在货运物流领域应用RFID技术，实现货车车辆、货物货箱、铲车的统一化、联动化管理，以及收发货、堆场调度、称重等物流关键环节的自动化和可视化管理，通过信息化手段优化物流仓储周转期，提高物流配送效率。
9. 天津港(集团)有限公司基于RFID技术的集装箱陆运作业流程改造。该项目拟在天津港陆运作业流程应用RFID技术，推动口岸相关集装箱物流公司安装应用国产RFID设备，实现港口运输车辆的全面射频卡管理，带动周边港口的关联应用。



APPENDIX C

ORIGINAL TEXT OF “THE ADOPTION & APPLICATION OF RFID TECHNOLOGY IN RELEVANT INDUSTRIES IN CHINA”

10. 上海国际港务(集团)股份有限公司中美集装箱电子标签国际航线应用。该项目拟在集装箱国际航线应用RFID、EDI、GPS等技术的基础上,对集装箱物流的全过程实时在线监控,实现多标准的电子标签系统的兼容,形成《可重复利用的多功能集装箱电子封条》ISO国际标准草案。

11. 航天信息股份有限公司基于RFID技术的区域粮食流通应用。该项目拟通过进一步完善农户结算卡系统、粮库作业与信息系统集成、粮食物流监控与调度系统的功能,推进RFID技术在区域粮食物流领域的应用。

国家发展改革委对纳入国家信息化试点单位的后续工作提出以下要求:一、移动电子商务服务、电子认证服务、中小企业电子商务服务和大型骨干企业信息系统外包服务等电子商务服务类试点,要以优化服务模式、丰富服务内容、降低服务对象应用成本为目标,研究制定近期发展规划,进一步完善服务手段、拓展服务范围,形成面向市场的专业化服务能力,带动相关领域深化电子商务应用。二、新农村综合信息服务、信用信息服务等信息资源公益性开发类试点,要以充分整合资源、促进信息共享、培育良性循环发展机制为目标,在相关政府部门指导下制定近期发展规划,不断增强服务能力、改善服务质量、提高服务效率,通过政府引导、市场化运作的方式,形成面向企业和公众特定需求的公益性信息服务能力,探索信息资源公益性开发和增值性开发有效结合的途径。三、射频识别技术应用类试点,要以推动自主创新射频识别技术和装备应用、促进相关产业发展为目标,做好相关区域或行业的应用规划,建立应用标准和管理规范,完善基础设施和服务平台,探索设施共建、信息共享的管理体制和运行机制,提高社会管理、生产流通效率及精准控制能力。

(二) 国产超高频RFID读写设备成功进军国际市场

国家863计划先进制造技术领域“射频识别(RFID)技术与应用”重大项目课题又取得新的重要进展。在该项目中,由联盟成员单位先施科技股份有限公司承担研制的超高频(UHF)RFID读写器产品已经通过了美国市场准入的美国FCC标准委员会 RFID设备强制认证、日本市场准入的日本通产省TELEC标准委员会 UHF RFID设备强制认证、欧洲市场准入的欧盟EN标准委员会 UHF RFID设备测试认证、中国市场的工信部无管委CM UHF RFID设备强制认证。另外,台湾、马来西亚、菲律宾、香港等国家和地区的UHF RFID设备强制认证正在进行中。

该课题成果-UHF RFID读写器设备产品目前在国际RFID行业受到了高度关注,先施科技公司凭借过硬的研发技术力量及高质量的产品,与众多国际一流公司建立了紧密的RFID市场推广合作伙伴关系,通过同这些一流公司的合作,在国外参与了许多RFID重要应用项目,为我国国产UHF RFID设备打入国外高端应用市场起到了带动作用。先施的UHF RFID读写器设备产品已在国内外多个重大项目中成功实施,有近万套电子标签读写设备和上百万枚电子标签在国内外、多行业中应用。在国际UHF RFID应用市场中的销量及出口欧美市场量均名列国产同类产品前茅。

目前,该课题成果产品已成功应用于在美国、墨西哥、菲律宾、巴基斯坦和马拉维共和国的车辆及海关管理系统中,并开始在日本松下电气公司、三菱重工等生产流程管理中进行试点工作。



APPENDIX C

ORIGINAL TEXT OF "THE ADOPTION & APPLICATION OF RFID TECHNOLOGY IN RELEVANT INDUSTRIES IN CHINA"

(三) 国家金卡办批准成立了国家金卡工程RFID互操作中心

随着金卡工程RFID应用试点工作的推进与发展，目前涉及的行业、部门及地方迅速扩展，RFID互操作问题日益重要。为了确保不同厂商提供的RFID设备、软件及RFID应用系统之间的互联互通，加强互操作检测是重要手段之一。为了积极稳妥地推动RFID技术在我国各行各业及各地的广泛应用，发挥RFID技术的综合优势，推动信息化与国际化，同时加强RFID系统的信息安全管理，国家金卡工程协调领导小组办公室批复同意由工业和信息化部电子工业标准化研究所牵头成立国家金卡工程RFID互操作检测中心。

该中心已于2009年4月22日正式成立并启动了互操作测试活动，九家国内外厂家积极参加。参加测试的产品有18种标签，13台读写器，三个协议和两个频段。测试项目有三个预测试和八个应用场景测试，为期五天共进行了883项测试。

(四) 2009中国国际智能卡与RFID博览会成功召开

在国务院各相关部委及国家金卡工程首批12个试点省市的大力支持下，由国家金卡工程协调领导小组办公室主办的“2009中国国际智能卡与RFID博览会”于2009年6月3 -5日在首都北京展览馆举办。国家金卡工程协调领导小组办公室在大会上发布了《2008国家金卡工程及中国RFID年度发展报告》。会议期间还成功召开了中日韩RFID行业协会圆桌会议第四次工作会，落实了四项新的国际合作项目。博览会期间公布了“2009国家金卡工程优秀成果金蚂蚁奖”64个获奖项目及单位。专题论坛主要包括：移动支付在移动电子商务中的应用论坛、RFID在烟酒行业及防伪领域的应用、智能卡与RFID在食品/药品安全监管领域的应用、RFID在交通领域、图书馆领域的应用方兴未艾、银行卡的创新发展和应用拓展、RFID标准体系建设和信息安全问题等专题。本届博览会在各相关部委、试点省市、国内外、业界同仁及社会各界的指导与支持下获得圆满成功。



APPENDIX D

READER OPINION FORM

Thank you for reading the LSCM Market Intelligence Report. In order to improve the quality of the report and its value to the industry, we invite you to complete this reader opinion form.

1. How do you find the report comprehensive and useful? Does it reflect industry problems and technology needs?

2. Does the report contain sufficient detail? What other contents you would like to include in the report?

3. Which parts of the report are the most useful to your work?

4. How does the information in this report impact on your views of enabling technologies?

5. What improvements can be made to this report?

6. Do you have any other comments or suggestions?

7. Would you recommend your colleagues/partners reading this report?

8. Contact Information *(Optional)*

Name ☐ Ir ☐ Prof ☐ Dr ☐ Mr ☐ Mrs ☐ Ms

Company

Phone Number

Email

Thank you for your feedback. Please return the completed form by fax: (852) 2299 0552 or email to klam@lscm.hk.



APPENDIX E

MEMBERSHIP APPLICATION FORM



Act Now!

Apply Centre Membership
on or before
31 March 2010 to enjoy
Annual Membership
Fee Waiver!

Centre Membership Scheme

Promotional Terms and Conditions:

1. The promotional period is between 1 April 2009 and 31 March 2010 inclusive (the "Promotional Period").
2. Applicant is required to submit the completed application form via mail or online channel together with all supporting documents within the Promotional Period. A notification letter will be sent to the successful applicant by mail.
3. Membership application is subject to the LSCM R&D Centre's usual membership approval procedure.
4. Membership and annual membership fee waiver for successful applicant will expire on 31 March 2010. Next membership year will be started on 1 April 2010, annual membership fee shall be payable upon renewal.
5. The LSCM R&D Centre reserves the right to amend the promotional offers and these terms and conditions at any time without prior notice. In the event of any disputes arising out of this promotion, the decision of the LSCM R&D Centre shall be final.



A member of Hong Kong R&D Centres
香港研發中心成員



APPENDIX E

MEMBERSHIP APPLICATION FORM

Application Form for LSCM R&D Centre Membership

Membership Categories *(please select and mark with a tick)*

Centre Membership Categories

☐ Individual Membership

☐ Company / Institute Membership

☐ Technology / Solution Provider Membership

Part IA- General Information *(For "Company/ Institute" & "Technology /Solution Provider" Membership Only)*

Company Name (in English)

(In Chinese)

Office Address / Correspondence Address

Telephone Number

Facsimile Number

Email

Postcode

Country

Website

Name of Representative (in English) ☐ Ir ☐ Prof ☐ Dr ☐ Mr ☐ Mrs ☐ Ms

(in Chinese)

Position (in English)

(in Chinese)

Business Registration Number

Year of Establishment

No. of Staff (in Hong Kong)

No. of Staff (outside Hong Kong)

Part IB - General Information *(For individual Membership Only)*

Name (in English) ☐ Ir ☐ Prof ☐ Dr ☐ Mr ☐ Mrs ☐ Ms

(in Chinese)

Correspondence Address

Telephone Number

Email

Your Job (please specify your company name)

Postcode

Country

Part II - Industry *(please mark with a tick)*

☐ Government

☐ Non-profit Organization

☐ University

☐ Technology - Hardware Vendor

☐ Technology - Software Vendor

☐ Technology - System Integrator

☐ 3rd / 4th Party Logistics Service

☐ Shipping

☐ Freight Forwarding - Air / Sea

☐ Storage & Warehousing

☐ Carrier Services

☐ Cargo Terminal Operators

☐ Trucking

☐ Logistics & Courier Services

☐ Retailer

☐ Manufacturer

☐ Others, please specify:



APPENDIX E

MEMBERSHIP APPLICATION FORM

Part III - Payment Method

By Cheque

Please issue a cheque for the appropriate amount made payable to "Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies Limited". Please write the full name of your company at the back side of the cheque. An acknowledgement of receipt will be returned to you within Ten(10)working days.

Issuing Bank: _____ Cheque Number: _____

Part IV - Terms and Conditions

1. Membership commences on 1 April and expires on 31 March each year. Annual Membership Fee will be calculated on quarterly basis (three months) for members joining at any time of the year.
2. Annual Membership Fee is payable upon application. Please issue a cheque payable to "Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies Limited", and attach it to the application form.
3. Annual Membership Fee:
 - Free (Individual Membership)
 - HK\$2,000 (Centre Membership - Company / Institute)
 - HK\$10,000 (Centre Membership - Technology / Solution Provider)
4. Applications for membership will be considered by the LSCM R&D Centre at the regular meeting scheduled for that purpose, the entire application procedure will take around Forty-five (45) working days.
5. The applicant reserves the right of terminating the membership by giving no less than Thirty (30) days' written notice to the LSCM R&D Centre Office.
6. The LSCM R&D Centre reserves the right to use member's company name and logo for display in our official functions and marketing materials.
7. The LSCM R&D Centre reserves the right to amend these Terms and Conditions at any time without prior notice.

Part V - Declaration of the Applicant

1. The applicant declares that all particulars given in the application are true and correct.
2. The applicant agrees to the Terms and Conditions and the Bylaws relating to Membership (Appendix 1).
3. The applicant agrees to pay the annual membership fee upon application.
4. The applicant agrees the information submitted can be used by the LSCM R&D Centre for membership related purpose.**

Authorization Signature:

Position:

Date:

(For company membership, please sign with company chop)

****About Your Information and the Personal Data Privacy Ordinance**

The membership data can be used by the LSCM R&D Centre for membership related purposes such as production of the Members' Directory, issuing membership certificate, sending out circulars and publications, conducting surveys, or other directly related activities in print or on-line format. If you wish to make alternative arrangement or not to receive certain information, please inform us in writing. For unsuccessful applications, personal data collected will be destroyed after Six (6) months.

For LSCM R&D Centre Use

Membership Application Received on:

Received By:

Approved at Regular Meeting held on:

Membership Number:

Membership Class:

Remarks:

Handled by:

Funded by:



創新科技署
Innovation and
Technology Commission





APPENDIX E

MEMBERSHIP APPLICATION FORM

Appendix 1

BYLAWS OF THE HONG KONG R&D CENTRE FOR LOGISTICS AND SUPPLY CHAIN MANAGEMENT ENABLING TECHNOLOGIES

ARTICLE I MEMBERSHIP

SECTION 1

Categories of Membership: Membership in the Centre shall be in Three (3) categories as follows:

Individual: An individual membership shall be available to all person who is interested in innovative logistics and supply chain related technologies

Company / Institute: An organization membership shall be available to all companies / institutes, e.g. small or medium sized enterprises, venture capitalists, R&D organizations and universities

Technology / Solution Provider: An organization membership shall be available to all companies that provide solutions and technologies to end-user companies, e.g. vendors, SI

SECTION 2

Membership Application Procedures: Application for membership in the Centre shall be made by completing the prescribed form. The completed form shall be returned to the Centre in person, by mail or through on-line submission.

In person / By Mail:

1. Obtain the application form in person from the LSCM R&D Centre Office or download the form online.
2. Carefully read the Notes to applicant on the application form to understand the requirements and procedure for application for membership.
3. Submit the completed application form and a copy of Business Registration with annual membership fee* to the LSCM R&D Centre Office in person or by post. Please issue a cheque for the appropriate amount made payable to "HK R&D Centre for Logistics and Supply Chain Management Enabling Technologies Limited". An acknowledgement of receipt will be returned to you.
4. The LSCM R&D Centre Office will contact you for further information if necessary and will inform you of the result of the application in due course. The cheque payment will be settled only when the application is approved.
5. For membership enquiries, please contact the LSCM R&D Centre Office at (852) 2299 0551 quoting your reference number or email us at membership@lscm.hk

*Applicable to company membership only

On-line Submission:

1. Select "Online Registration" under Membership of the Centre's official website at www.lscm.hk.
2. Carefully read the Notes to applicant on the on-line application form to understand the requirements and procedure for application for membership.
3. Submit the completed form and select payment method.

(a) By Cheque

Please issue a cheque for the appropriate amount made payable to "Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies Limited". The cheque should be sent together with a copy of Business Registration* to the following address within Two (2) weeks:

Hong Kong R&D Centre for Logistics and
Supply Chain Management Enabling Technologies
Room 202, Level 2, Block B, Cyberport 4
100 Cyberport Road, Hong Kong
(Ref.: Membership Application - Reference No. XXXX)

Please write the full name of your company at the back side of the cheque. An acknowledgement of receipt will be returned to you.

(b) By Credit Card

Please input credit card information on-line and the annual membership fee will be debited from this credit card only when the application is approved. Please send a copy of Business Registration* by fax: (852) 2299 0552 or email: membership@lscm.hk within 2 weeks.

4. The LSCM R&D Centre Office will contact you for further information if necessary and will inform you of the result of the application in due course.
5. For membership enquiries, please contact the LSCM R&D Centre Office at (852) 2299 0551 quoting your reference number or email us at membership@lscm.hk

*Applicable to company membership only.

The LSCM R&D Centre reserves all rights to amend the Terms and Conditions on the prescribed form at any time without prior notice.

SECTION 3

Membership Dues and Admission: Membership commences on 1 April and expires on 31 March each year. Annual Membership Fee shall be payable upon application. For renewal, Annual Membership Fee shall be payable on or before the first day of the next membership year.

Annual Membership Fee:

Individual:	Free
Company/Institute:	HK\$2,000.00
Technology / Solution Provider:	HK\$10,000.00

Membership fee will be calculated on quarterly (three months) basis for members joining at any time of the year.

The amount of Annual Membership Fee shall be determined annually by the Centre provided that the Centre may in its absolute discretion reduce, remit or waive any Annual Fee from or paid by an Individual, a Company/Institute or a Technology/Solution Provider member.

SECTION 4

Termination of Membership: Memberships may be terminated:

- (a) by resignation: A member in good standing, may resign at any time by giving Thirty (30) days written notice, and no annual dues or any part(s) thereof shall be refunded. Resignation shall take effect not earlier than Thirty (30) days after receipt of the written notice by the Centre.
- (b) by lapsing: A membership will be considered as lapsed and automatically terminated if such member's dues remain unpaid for Thirty (30) days after the first day of the membership year; however, the Centre may grant a grace period of an additional Thirty (30) days to such delinquent members. Members whose membership has lapsed shall be allowed to rejoin as a renewing member at the absolute discretion of the Centre.
- (c) by expulsion: A membership may be terminated by expulsion as provided in Section 7, Article I of these Bylaws, or any other conduct that is seriously prejudicial to the Centre.

SECTION 5

Transfer of Membership: Membership of the Centre shall not be transferred or assigned.

SECTION 6

Reinstatement: A person / company whose membership has been terminated for non-payment of dues may be reinstated as a member upon payment of the current annual dues. A person / company whose membership has been terminated for any other reasons may apply for reinstatement as a new applicant only as prescribed in Section 2 and 3 of this Article I. Reinstatement shall not be granted to persons / companies with any outstanding indebtedness to the Centre.

SECTION 7

Rules of Conduct: These Guidance Notes apply to all Members. The Centre may change or add any Rules from time to time provided that such changes or additions are not contrary to these Bylaws.

- (a) Members shall demonstrate a level of competence consistent with their class of membership
- (b) Members shall at all times act with integrity and contribute to society
- (c) Members shall not infringe intellectual property rights including but not limited to copyrights, trademarks, service marks, trade dress, design rights (registered or not) and patents of other, and shall give proper credit for intellectual property rights when usage of such right is granted
- (d) Members shall respect the privacy of other
- (e) Members shall be honest and trustworthy
- (f) Members shall be fair and not to discriminate regardless of religion, gender, disability, age, or national origin
- (g) Members shall reject bribery in all its forms, and shall avoid engaging in work or act that leads to conflict of interest situation
- (h) Members shall seek, accept, and offer honest criticism of R&D work, and to credit properly the contributions of others

SECTION 8

Personal Data Privacy Ordinance: The membership data can be used by the LSCM R&D Centre for membership related purposes such as production of the Members' Directory, issuing membership certificate, sending out circulars and publications, conducting surveys, or other directly related activities in print or on-line format. If you wish to make alternative arrangement or not to receive certain information, please inform us in writing. For unsuccessful applications, personal data collected will be destroyed after Six (6) months.

SECTION 9

Amendments: These Bylaws may be amended by the Board of Directors of the Centre from time to time at its discretion. In case of any discrepancy between the Bylaws and the Memorandum of Association of the Centre, the Memorandum of Association of the Centre shall prevail.



APPENDIX E

MEMBERSHIP APPLICATION FORM

Centre Membership		
Category	Criteria and Benefits	Annual Fee
Individual Membership	<p>Individual participates as an ordinary member.</p> <p>Members' Benefit</p> <ul style="list-style-type: none"> • Entry to international networks of companies and researchers • Have preference to participate in LSCM R&D Centre's organized events (e.g. training, conference) 	Free
Company / Institute Membership	<p>Company / institute participates as an ordinary member, e.g. small or medium sized enterprise, venture capitalist, R&D organizations and universities.</p> <p>Members' Benefit</p> <ul style="list-style-type: none"> • Entry to international networks of companies and researchers • Access to LSCM R&D Centre's project portfolio and information, provided that project confidentiality is not comprised • Have preference to participate in LSCM R&D Centre's organized events (e.g. training, conference) • Access to membership networks and member area on website • Have preference to participate / sponsor / co-organize in LSCM R&D Centre's events • Company name listed on LSCM R&D Centre website • Have rights to display "Member of LSCM R&D Centre" on business card and other various functions, occasions, materials and applications subject to approval 	HK\$2,000
Technology / Solution Provider Membership	<p>Companies that provide solutions and technologies to end-user companies. They will have preference to participate / speak / sponsor / co-organize in Centre's events.</p> <p>Members' Benefit</p> <ul style="list-style-type: none"> • Entry to international networks of companies and researchers • Access to LSCM R&D Centre's project portfolio and information, provided that project confidentiality is not comprised • Have preference to participate in LSCM R&D Centre's organized events (e.g. training, conference) • Access to membership networks and member area on website • Have preference to participate / sponsor / co-organize in LSCM R&D Centre's events • Company name listed on LSCM R&D Centre website • Have rights to display "Member of LSCM R&D Centre" on business card and other various functions, occasions, materials and applications subject to approval • Opportunity to champion new Supply Chain Management enabling technologies • Eligible to participate in providing consulting and solutions to LSCM R&D Centre community 	HK\$10,000

Application Procedures

1. Obtain the application form in person from the LSCM R&D Centre Office or download the form online.
2. Carefully read the notes to applicant on the application form to understand the requirements for membership.
3. Submit the completed form and a copy of Business Registration with annual membership fee* to the LSCM R&D Centre Office in person or by post. Please issue a cheque for the appropriate amount made payable to "Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies Limited". An acknowledgement of receipt will be returned to you within Ten(10)working days.
4. Postal address: Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies, Room 202, Level 2, Block B, Cyberport 4, 100 Cyberport Road, Hong Kong
5. The LSCM R&D Centre Office will contact you for further information if necessary and will inform you of the result of the application in due course. The cheque payment will be settled only when the application is approved.
6. For membership enquiries, please contact the LSCM R&D Centre Office at 2299 0551 quoting your reference number or email us at membership@lscm.hk.

* Applicable to company membership only



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MEMBERSHIP APPLICATION FORM



即日起

成功申请成为研发中心会员，
可获豁免会员年费！
推广优惠至2010年3月31日，
请即行动！

研发中心会员计划

推广优惠条款及细则：

1. 推广期由2009年4月1日起至2010年3月31日止，首尾两天包括在内（「推广期」）。
2. 任何人士须于推广期内透过邮递或网上填妥研发中心会员申请表格及交妥申请所需之文件，成功申请者将获专函通知。
3. 研发中心会员申请须通过本研发中心的一般会员审批程序。
4. 成功申请者之会籍有效期及所获豁免之会费一律至2010年3月31日止。新一年度之研发中心会员会籍将于2010年4月1日起重新开始，届时旧研发中心会员必需缴交年费，方可更新研发中心会员之新会籍。
5. 本研发中心保留权利可修改优惠及本条款及细则，而毋须预先通知。是次推广如有任何争议，本研发中心保留最终决定权。



A member of Hong Kong R&D Centres
香港研发中心成员



APPENDIX E

MEMBERSHIP APPLICATION FORM

香港物流及供应链管理应用技术研发中心——会员申请表

会员类别 (请于适当位置划上勾号)

中心会员

☐ 个人

☐ 公司/学院

☐ 技术/解决方案供应商

甲部 (一) —— 申请人资料 (只供「公司/学院」和「技术/解决方案供应商」会员填写)

公司名称 (英文)

(中文)

办事处地址/通讯地址

电话号码

传真号码

电邮地址

邮政编号

国家

公司网址

公司代表人姓名 (英文)

(中文) ☐ 工程师 ☐ 教授 ☐ 博士 ☐ 先生 ☐ 太太 ☐ 女士

职衔 (英文)

(中文)

商业登记证号码 (等同营业执照注册号)

公司成立年份

香港职员人数

海外职员人数 (香港以外地方)

甲部 (二) —— 申请人资料 (只供个人会员填写)

申请人姓名 (英文)

(中文) ☐ 工程师 ☐ 教授 ☐ 博士 ☐ 先生 ☐ 太太 ☐ 女士

通讯地址

电话号码

电邮地址

职业 (请列明公司名称)

邮政编号

国家

乙部——业务性质 (请于适当位置划上勾号)

☐ 政府机构
☐ 非牟利机构
☐ 大学/学院
☐ 硬件供应商
☐ 软件供应商

☐ 三方/四方物流服务业
☐ 航运业
☐ 货运业-空运/海运
☐ 仓库及货仓管理业
☐ 运输业

☐ 货车运输业
☐ 物流及速递服务业
☐ 零售商
☐ 制造商
☐ 其他, 请列明:



APPENDIX E

MEMBERSHIP APPLICATION FORM

丙部—付款方法

支票

请以支票支付会员年费，抬头祈付「香港物流及供应链管理应用技术研发中心有限公司」。请于支票背面填写公司名称。本研发中心将于收妥支票后十个工作日内向阁下发回收据。

银行名称：_____ 支票号码：_____

丁部—条款及细则

1. 会籍每年由四月一日起生效，三月三十一日期满。如于年中入会，会费将以季度(三个月)计算。
2. 报名须缴付年费。请以支票付款，抬头祈付「香港物流及供应链管理应用技术研发中心有限公司」，并连同申请表一并交回。
3. 年费：
 - 免费 (个人会员)
 - 港币2,000元 (中心会员-公司/学院)
 - 港币10,000元 (中心会员-技术/解决方案供应商)
4. 会员理事会将于下次例会讨论会员申请，申请过程约需四十五个工作日。
5. 申请人保留取消会籍之权利，但必须给予本中心办事处不少于三十天的书面通知方为有效。
6. 本研发中心有权于本研发中心之公开活动或宣传资料中展示会员的公司名称和商标。
7. 本研发中心保留更改条款及细则内容之权利，恕不另行通知。

中文译本如与英文原文有差异，概以英文为准。

戊部—申请人声明

1. 申请人确认申请表上填写的所有资料均属正确无误。
2. 申请人同意本研发中心提供之条款及细则和参阅附例 (见附件1)。
3. 申请人同意于提交会员申请表时缴交年费。
4. 申请人同意本研发中心使用阁下已递交的资料用于与会籍有关的用途。 **

授权人签名

职衔

日期

(如申请人为公司，请盖上公司印章)

**关于阁下的资料与《个人资料(私隐)条款》

会员提交的资料，只可供本研发中心作与会籍有关的用途，如以印刷本或电子形式编制《会员名录》、签发会籍证书、发出通函及刊物、进行意见调查，或其他直接相关的活动。阁下欲作其他资料使用的安排或不欲收到某些资料，请书面通知本研发中心。落选申请人的个人资料将于六个月内销毁。

只供本研发中心使用

会员申请表收妥日期：

接收职员：

会籍批核日期：

会员编号：

会员类别：

备注：

负责职员：

资助：



創新科技署
Innovation and
Technology Commission



HONG KONG
R&D Centres
香港研發中心



APPENDIX E

MEMBERSHIP APPLICATION FORM

附件 1

香港物流及供应链管理应用技术研发中心附例

第1条 会籍

第1节

会籍类别 本中心会籍分为如下三(3)个类别：

个人：

个人会籍适用于所有对创意物流及供应链相关技术感兴趣的人士

公司 / 学院：

机构会籍适用于所有公司/学会，例如中小型企业、创业资本家、研发机构及大学

技术/解决方案供应商：

机构会籍适用于所有为最终用户公司提供解决方案及技术的公司，例如软件开发商及系统整合商

第2节

会籍申请程序：如欲申请本中心会籍，须填写指定表格，然后亲身或以邮递方式交回本中心，或于网上递交表格。

亲身/以邮递方式递交

1. 亲身前往香港物流及供应链管理应用技术研发中心办事处索取申请表格，或于网上下载表格。
2. 仔细阅读附载于申请表上的申请人须知，以了解申请会籍的要求。
3. 将填妥的表格连同商业登记证副本（等同营业执照注册副本）及会费*，亲身或以邮递方式递交香港物流及供应链管理应用技术研发中心办事处。请在支票写上适当金额，抬头请写「香港物流及供应链管理应用技术研发中心有限公司。」确认收据将于十(10)个工作日内寄回申请人。
4. 如有需要，香港物流及供应链管理应用技术研发中心办事处将与申请人联络，要求提供进一步的资料，并将在适当时候通知申请人有关申请的结果。支票将于申请获得批准后始过数。
5. 有关会籍查询，请致电(852) 2299 0551与本中心办事处联络，并报上参考编号，或致电邮往membership@lscm.hk与本中心办事处联络。

*只适用于公司会籍

网上递交：

1. 登入本中心的正式网站www.lscm.hk 在会籍项下选择「网上登记」。
2. 仔细阅读附载于网上申请表格的申请人须知，以了解申请会籍的要求。
3. 提交已填妥的表格，并选择付款方式。

以支票付款：

请在支票写上适当金额，抬头请写「香港物流及供应链管理应用技术研发中心有限公司。」支票须于两(2)星期内连同商业登记证副本（等同营业执照注册副本）送交下述地址。支票背面请写上申请人公司的全名。确认收据将于十(10)个工作日内寄回申请人。

香港物流及供应链管理应用技术研发中心
香港数码港道100号数码港4B座2楼202室
(有关申请会籍事宜一参考编号XXXX)

以信用卡付款：

请输入信用卡资料，会费将于申请获得批准后始从有关信用卡户口扣除，请于两(2)星期内传真商业登记证副本（等同营业执照注册副本）至(852) 2299 0552或电邮至membership@lscm.hk。

4. 如有需要，香港物流及供应链管理应用技术研发中心办事处将与申请人联络，要求提供进一步的资料，并将在适当时候通知申请人有关申请的结果。
5. 有关会籍查询，请致电(852) 2299 0551与本中心办事处联络，并报上参考编号，或致电邮往membership@lscm.hk与本中心办事处联络。

香港物流及供应链管理应用技术研发中心保留权利随时对指定表格上的条款及细则进行修订，而毋须事先发出通知。

第3节

会费及入会费：会籍每年由四月一日起生效，三月三十一日期满。年费须于申请入会时缴付，续会年费则于下一会籍年度首日或之前缴付。

年费：

个人：	免费
公司 / 学院：	港币2,000.00元
技术 / 解决方案供应商	港币10,000.00元

如于年中入会，会费将以季度(三个月)计算。

第4节

会籍终止：会籍可于下述情况下终止：

退会：

纪录良好的会员可随时给予三十(30)天书面通知要求退会，年费将不获退还。退会生效日期不得早于本中心收到书面通知的日期。

会籍失效：

如会员于会籍年度首日三十(30)天内仍未缴付会费，其会籍将被视为失效且自动终止；然而，本中心可给予该等逾期未付会费的会员额外三十(30)天的宽限期。本中心会酌情批准会籍已失效的会员重新入会成为续会会员。

开除会籍：

会员可因本条例第1条第7节的规定或任何其他严重损害本中心的行为，而被开除及终止会籍。

第5节

会籍转让：本中心会籍不得转让或转借。

第6节

恢复会籍：因欠缴会费而被终止会籍的人士/公司，可于缴付该年度会费后恢复会籍。因任何其他原因而被终止会籍的人士/公司，只可按照本条例第1条第2及3节所指定的程序以新申请人身份申请恢复会籍。于本中心有任何未清缴款项的人士/公司，将不获准恢复会籍。

第7节

行为守则：以下的指引适用于所有会员。本中心可不时对任何守则作出增修，惟所增修的内容不可与该等附例相违。

1. 会员应展示与其会员等级相符的能力水平
2. 会员应时刻保持诚信，并对社会作出贡献
3. 会员不得侵犯知识产权，包括版权及其他方面的专利权；如获授权使用，应遵守知识产权法规
4. 会员应尊重他人的隐私
5. 会员应待人诚实可靠
6. 会员应处事公正，且不因宗教、性别、残疾、年龄或国籍等因素而产生歧视
7. 会员应拒绝接受任何形式的贿赂，并应避免参与会导致利益冲突情况出现的工作或行动
8. 会员应寻求、接受及提出对研发工作诚意的批评，并适当地对他人所作的贡献予以提述。

第8节

个人资料(私隐)条例：会籍资料可供香港物流及供应链管理应用技术研发中心作会籍相关的用途，如以印刷本或电子形式编制《会员名录》、签发会籍证书、发出通函及刊物、进行意见调查，或其他直接相关的活动。会员如欲另作安排或不欲收取若干资料，请以书面通知本中心。未获接纳申请入会人士的个人资料，将于六(6)个月后销毁。

第9节

修订：本中心董事局或会不时酌情对本附例进行修订。假如本附例与本中心《组织大纲》存有任何歧异，概以本中心《组织大纲》为准。



APPENDIX E

MEMBERSHIP APPLICATION FORM

中心会员		
会员类别	准则及权益	年费
个人	<p>以个人名义成为基本会员。</p> <p>会员可享权益</p> <ul style="list-style-type: none"> • 打开公司和研究的国际网络 • 拥有优先权参与本研发中心举办之活动（例如培训、会议） 	全免
公司/学院	<p>以公司/学院名义成为基本会员，例如中小型企业、投资者、研发机构和大学。</p> <p>会员可享权益</p> <ul style="list-style-type: none"> • 打开公司和研究的国际网络 • 在不泄露研发项目机密的原则下，会员可得到本研发中心的研发项目纲要及资料 • 拥有优先权参与本研发中心举办之活动（例如培训、会议） • 登入会员网络及会员专用网页 • 拥有优先权参与/赞助/合办本研发中心的活动 • 公司名字可刊登于本研发中心之网页 • 有权于名片上或于不同活动、场合、刊物和申请上显示「香港物流及供应链管理应用技术研发中心会员」之字样，但须获本研发中心批准 	港币2,000元
技术/解决方案 供应商	<p>为终端用户公司提供方案和技术的公司。他们享有优先权参与或赞助本研发中心举办之活动，亦可于活动中参与演讲或与本研发中心合办活动。</p> <p>会员可享权益</p> <ul style="list-style-type: none"> • 打开公司和研究的国际网络 • 在不泄露研发项目机密的原则下，会员可得到本研发中心的研发项目纲要及资料 • 拥有优先权参与本研发中心举办之活动（例如培训、会议） • 登入会员网络及会员专用网页 • 拥有优先权参与 / 赞助 / 合办本研发中心的活动 • 公司名字可刊登于本研发中心之网页 • 有权于名片上或于不同活动、场合、刊物和申请上显示「香港物流及供应链管理应用技术研发中心会员」之字样，但须获本研发中心批准 • 有机会使用新的供应链管理应用技术 • 可参与提供顾问服务和方案予本研发中心 	港币10,000元

申请程序

1. 亲身前往本研发中心办事处索取会员申请表或从本研发中心网站下载。
2. 请仔细阅读会员申请表上的申请人须知，以了解会员计划的申请条件及程式。
3. 填妥会员申请表后，连同商业登记证副本（等同营业执照注册副本）和会费亲身递交或邮寄至本研发中心办事处。请以支票付款，抬头祈付「香港物流及供应链管理应用技术研发中心有限公司」。本研发中心将于收妥支票后十个工作日内向阁下发回收据。
4. 如有需要，本研发中心办事处会联络阁下以获取更多资料和通知阁下会员申请的结果。本研发中心只会在申请获批后才兑现交回之支票。
5. 通讯位址：香港数码港道100号数码港4B座2楼202室 香港物流及供应链管理应用技术研发中心。
6. 有关会员申请查询，请致电2299 0551联络本中心办事处，查询时请引述阁下的参考编号以便翻查资料。亦可以电邮至 membership@lscm.hk 查询。

* 只适用于公司会员



Hong Kong R&D Centre for Logistics and
Supply Chain Management Enabling Technologies
香港物流及供應鏈管理應用技術研發中心

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聯絡我們

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