

ISSUE 2 –  
Technology  
October 2008

# 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





ISBN 978-988-17844-2-1

Published by

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

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Last revision date: 20 April 2009

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# 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 2) – October 2008”** is to share findings from on-site company visit exercise focusing on technology sector in Hong Kong. It is also supplemented with the adoption and application of RFID technology in relevant industries in China in addition to an overview of China RFID standardization development for much more attention to be given to those involved with research. In forthcoming issues, the Project Team will study more industries and stay connected with stakeholders along the supply chain (a total of 400 companies are in the visiting plan).



# 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.

### 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.

#### Role in the Project

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



# BACKGROUND

## PROJECT TEAM

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

The following are core members of the Project:

#### **Project Coordinator and Principal Investigator**

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Marketing Manager, LSCM R&D Centre





# BACKGROUND

## ACKNOWLEDGEMENTS

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

We own special thanks to the following companies, which participated in in-depth interviews to share invaluable opinions with us. They helped project team members in understanding the technology capabilities of I.T. companies in Hong Kong.

Alpha Solution Limited
Axway Limited
BISA Technologies (Hong Kong) Limited
BlueSolve Limited
Clever Motion Technology Limited
Computer And Technologies Holdings Limited
COSCO Network Limited
eBean Century
ETI Consulting Limited
Expert Systems IVR (Asia) Company Limited
Freight Forwarders' Computer Advocate Limited
Giant Creation Limited
Giant Innovation Limited
Hong Kong Communications Equipment Company Limited
Hong Kong RFID Limited
IDENTEC SOLUTIONS Asia Limited
Integrated Concepts International Limited
Intermec Technologies Corporation
International Transport Information Systems Limited
Logistics Services Platform Limited
Mobinology Asia Limited
Powersun Century Limited
RCG Holdings Limited
RFID System & Supplies Limited
Schmidt & Co. (Hong Kong) Limited
Smerp Technology Limited
Tigar Technology Limited
Vizilog Solutions Limited
Zymmetry Limited



# BACKGROUND

## ACKNOWLEDGEMENTS

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 Logistics Association
Hong Kong Productivity Council
Hong Kong Science & Technology Parks Corporation
Hong Kong Shippers' Council

Gratitude to the collaborating organizations and many research consultants from these organizations who, over the months, have played such an important role in this project:

Hong Kong - Hong Kong Productivity Council
Dr. Lawrence Cheung
PRD - Research Center for Modern Logistics Technology and Management Lingnan(University)College, Sun Yat-Sen University
Prof. Chen Gongyu Dr. Zhang Hongbin
China - RFID China Alliance
Madam Zhang Qi Mr. David Ouyang

Specifically, thanks are in order to **Ms. Grace Wong, Mr. William Chan** and **Dr. Benjamin Yen** for their hard work, expertise and feedback.

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.

## EXECUTIVE SUMMARY





# EXECUTIVE SUMMARY

Empowering the logistics and supply chain community in Hong Kong and PRD with market and technology intelligence is a priority for the LSCM R&D Centre. **LSCM Market Intelligence Report**, a study on enabling technologies for industries related to Logistics and Supply Chain Management offers industry players with analytical results from in-depth interviews in which they can find cause for both requirement and concern from local industries. Featuring China RFID standardization development and the adoption & application of RFID Technology in relevant industries in China, we provide both research users and providers with a comprehensive view on the application and promotion of RFID technology as a major driving force for the development of world economy and trade.

The research of new technologies, along with customers' requirements and business processes, is resulting in the relevancy of solutions/products. To identify the market needs and help technological practitioners to better understand the market trends and enhance service competency, an on-site company visit exercise carried out by project team to gather complete, accurate information from technology sector for analysis and reporting was of great worth. The findings presented in the "**Broad Coverage**" section covered analysis on participants' 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. Throughout **Section 3 to Section 6 of Broad Coverage**, participants' services/products, business processes, perceived barriers for adopting I.T. and industry trends are examined. The objectives are to identify the gaps between customer needs and present I.T. solutions. To this end, there are two explicit implications which are summarized in Section 8.1.

**Section 3.6 of Broad Coverage** served to analyze participants' client business processes, the findings suggested that among the various business processes, Warehouse Operation is the most popular business process in their clients' business operation. However, it is noteworthy to learn that Warehouse Management is the least adopted I.T. technology regarded by the respondents (*Details refer to Section 8.2*).

In **Section 5.1 of Broad Coverage**, the biggest challenges in applying the current products/solutions for their customers were examined. The finding suggested that the three biggest challenges perceived by the respondents were Limited Budget (74%), Shortage of Skilled I.T. People from Customers or Internal (50%) and Project Management Problems (43%) respectively (*Details refer to Table 5.1*). In order to formulate and maintain a distinctive strategic positioning; one should take reference to Six Fundamental Principles (Michael Porter's Six Principles of Strategic Positioning) which practically outlined the crucial milestones and objectives for different stage for the development of an I.T. company (*Details refer to Section 8.3*).



## EXECUTIVE SUMMARY

Following the rapid development of economic globalization and rising competition in the international market, technical standardization has become the major tactic among enterprises worldwide. The article *"China RFID Standardization Development"* published in the **"Global/China Watch"** section introduced the RFID Standards Working Group of the Ministry of Information Industry and the major responsibilities of its seven sub-teams, they include the General Team, the Tag and Reader Team, the Frequency and Communication Team, the Information Standard Team, the Application Team, the Information Security Team and the Intellectual Property Team. In the past couple of years, the RFID Standards Working Group has been actively promoting research in RFID standard system as well as conducting preliminary research and modification works with local enterprises. A full list of national and industry standard proposals that submitted to Standardization Administration of China and the Ministry of Information Industry can be found in Section 3 of the said article. In December 2007, the Multi-Function Card Application Alliance of the National Golden Card Project was set up with emphasis on standardization as its work focus. As of October 2008, two working meetings were held with agreed action item to submit a proposal on standardization of mobile phone payment.

Lastly, an overview of practical applications of RFID technology in relevant industries and areas in China illustrates how RFID is used in many applicational sectors. They include applications for access control and transportation, track and trace of potentially dangerous items, security supervision of food/pharmacy supply chain, counterfeiting of important items and modern logistics management. A full list of descriptions of RFID pilot applications in China's Golden Card Project can be found in this report (*Details refer to Section 1&2, "The Adoption & Application of RFID Technology in Relevant Industries in China" of Global/China Watch*).

According to the Notice of *"Measures (Tentative) for the National Golden Card Project RFID Application Pilots"* and a published article *"Combining Independent Innovation and Open and Compatibility, Starting a New Phase for RFID Industry and Application Development"* by the Office of National Golden Card Project Coordination Leading Group, conditions of the pilots and principles to follow in pilots were clearly stated (*Details refer to Section 3&4, "The Adoption & Application of RFID Technology in Relevant Industries in China" of Global/China Watch*).



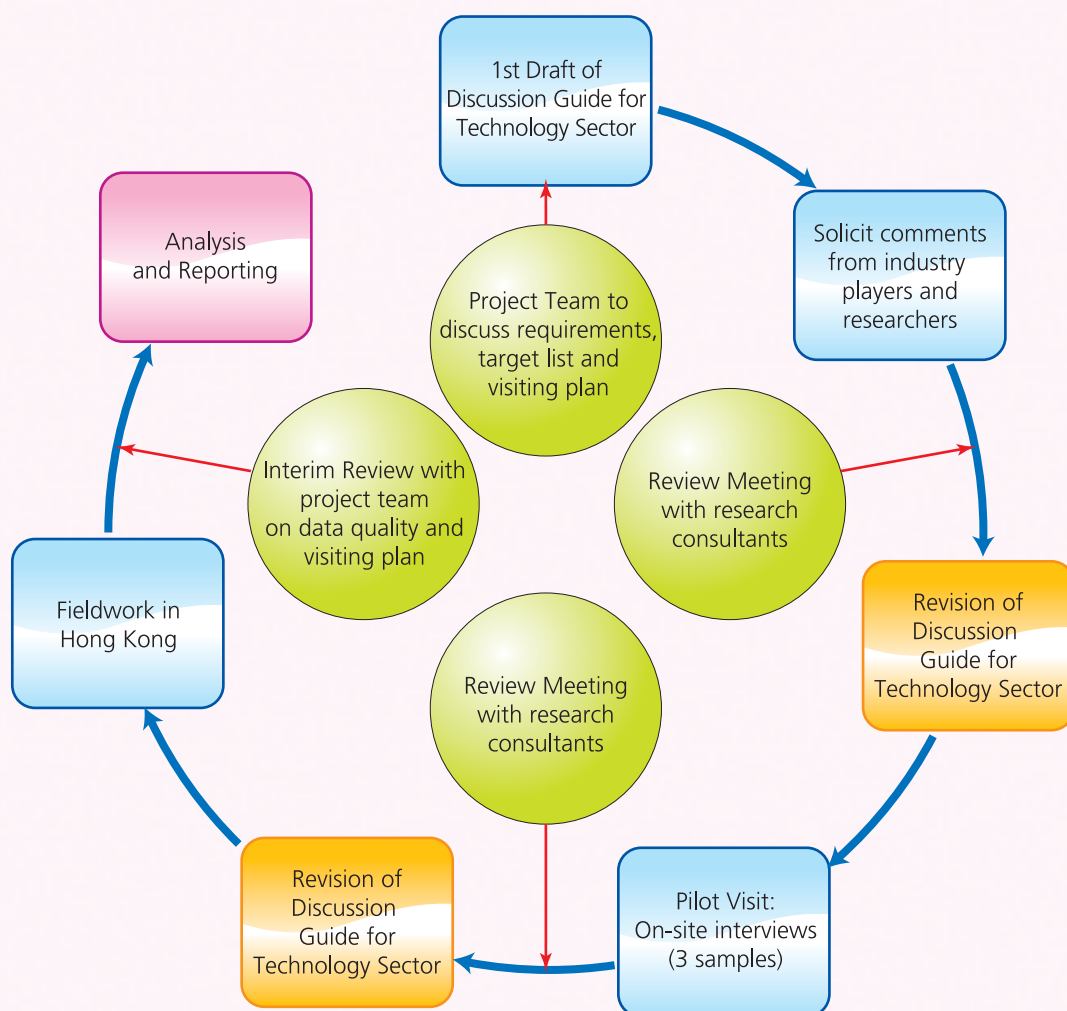
BROAD COVERAGE





## BROAD COVERAGE

The essential details presented in this section are based on information collected from 30 technology companies from Hong Kong. All interviews were carried out by research consultants between July and September this year, 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 30 participants, they engaged in different I.T. industries which were summarized in the following table. Both (Software and Hardware) accounted for the majority 43% (13 out of 30) of the total participants whereas I.T. Software ranked second which accounted for 20% of the total respondents (6 out of 30).

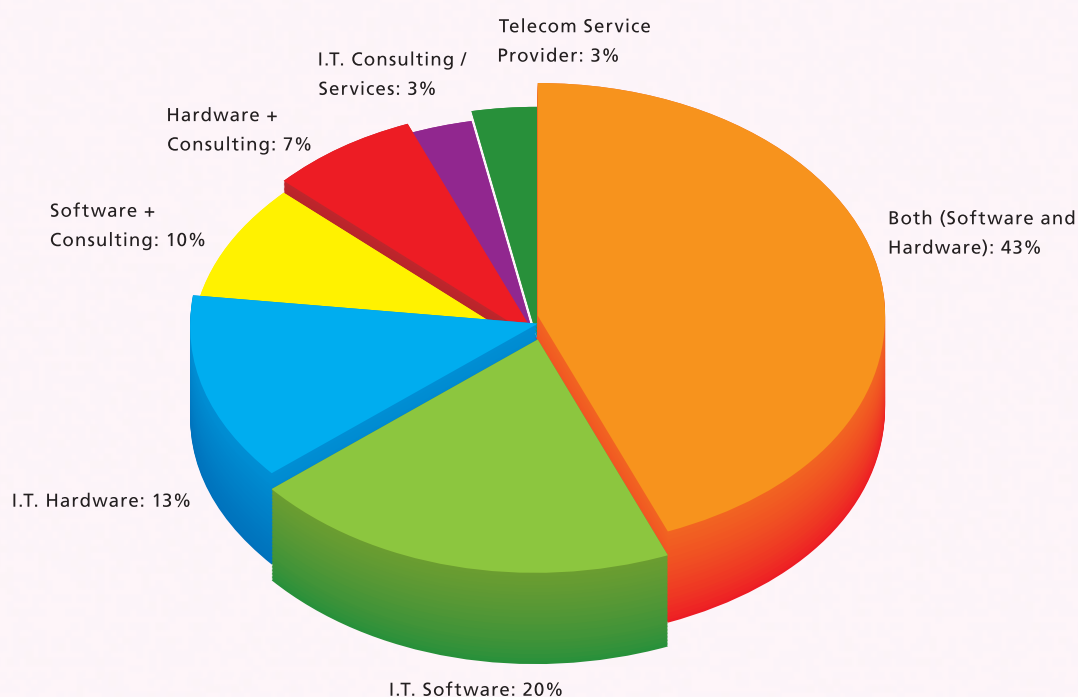
1.1 Table

**Analysis of Participants by Business Nature**

Industry	Number	%
Both (Software and Hardware)	13	43%
I.T. Software	6	20%
I.T. Hardware	4	13%
Software + Consulting	3	10%
Hardware + Consulting	2	7%
I.T. Consulting / Services	1	3%
Telecom Service Provider	1	3%
Total	30	100%

1.1 Chart

**Analysis of Participants by Business Nature**





# BROAD COVERAGE

## PROFILE OF PARTICIPANTS

### 1.2 Profile of Participants by Employee Size

Among the 30 participating companies, 9 of them (30%) employed less than 20 staffs whereas 11 companies (37%) employed 20-50 staffs. The findings were summarized in the following table.

1.2 Table

Analysis of Participants by Employee Size

Number of Staff	Number of Participants	%
< 20	9	30%
20-25	11	37%
51-100	2	7%
>100	8	27%
Total	25	100%

### 1.3 Profile of Participants by Job Title

Among the 30 participating respondents, 5 out of 30 participants (17%) were the Owner/ CEO, 40% each for respondents graded senior management (Director, GM) and Manager.

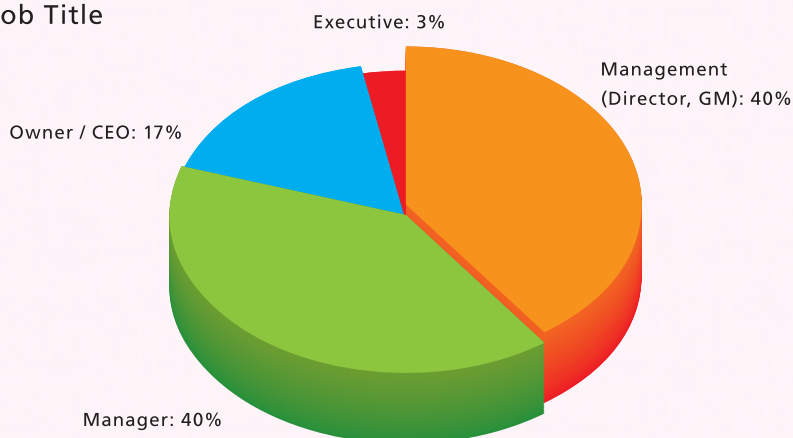
1.3 Table

Analysis of Participants by Job Title

Job Title	Number of Participants	%
Owner / CEO	5	17%
Management (Director, GM)	12	40%
Manager	12	40%
Executive	1	3%
Total	30	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. As it was an open-ended type question, respondents were welcome to indicate more than one business focuses. All 30 participants indicated their attributes and the findings were summarized in the following table.

Table 2.1a

Summary of Selections by Main Business Focus

Enterprise Business Solutions	%	E-Business Solutions	%
Customer Relationship Management	15%	E-Commerce (B2B, B2C, etc)	30%
Business Intelligence/Decision Support Systems & Query/Reporting Solutions	13%	Electronic Data Interchange Solutions	24%
Accounting Solutions	11%	Enterprise Portal & Content Management Solutions	22%
Human Resources Management	10%	Payment Solutions	14%
Sales Order Processing & Fulfillment Systems	10%	On-line Analytical Processing	11%
Management Information Systems	8%	Others (Please specify)	0%
Point of Sales	8%		
Enterprise Resources Planning	7%	Office Automation Solutions	%
Sales Force Automation Systems	7%	Document Management Solutions	60%
Manufacturing Resource Planning	6%	Back Office Management	20%
Information & Knowledge Management Solution	4%	Library Information Systems	20%
Operation Automation Solutions	%	Hardware/Consumable Products	%
Inventory Management Solution	12%	RFID Interrogator/Tags	33%
Bar-coding, Identification & RFID Solutions	11%	Barcode Reader/Printer	23%
Warehouse Management Systems	11%	Packaging and labels	17%
Supply chain Management	8%	Telecommunication	15%
Distribution & Transportation Solutions	7%	Point-of-Sales equipments	12%
Logistics Management Systems	7%		
Fleet Management	6%	Platform/Services	%
Freight Forwarding Management	6%	Track and Trace	52%
Ocean Forwarding Management	6%	Business Service	26%
Tracking and Management Devices	5%	Telecommunication	13%
Automated Workflow & Authorization Solutions	4%	Marketplace	9%
Global Positioning System	4%		
Property & Facilities Management Systems	3%		
Procurement Management Systems	2%		
Shipping Management	2%		
Forecasting and Planning Solutions	2%		
Import/Export and Trading Systems	2%		
Geographical Information Systems	1%		



# BROAD COVERAGE

## FINDINGS

The mostly selected business focus for each category was further summarized in the following table. The findings suggested that Customer Relationship Management, Inventory Management Solutions, E-Commerce, Document Management Solutions, RFID Interrogator/Tags, Track and Trace were the most popular business focus in the 6 I.T. business categories.

Table 2.1b  
Summary of Most Popular Business Focus

I.T. Business Categories	Business Focus	%
Enterprise Business Solutions	Customer Relationship Management	15%
Operation Automation Solutions	Inventory Management Solution	12%
E-Business Solutions	E-Commerce (B2B, B2C, etc.)	30%
Office Automation Solutions	Document Management Solutions	60%
Hardware/Consumable Products	RFID Interrogator/Tags	33%
Platform/Services	Track and Trace	52%

## 2.2 Analysis on Type of Technology Used for Solutions or Products

In this section, the type of technology used for/in participant's 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 are examined. Participants' indications were listed in the following table.

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

Auto-id Identification Technology	%	RDBS	%
1-D barcode	37%	Oracle	26%
2-D barcode	27%	SQL Server	31%
RFID	35%	Sybase	16%
		DB2	15%
		MYSQL	11%
Positioning Technology	%	Development Platform	%
GPS	39%	Java (J2EE and others)	45%
RTLS	27%	Microsoft (VB, VC++, .NET framework etc)	31%
LBS (location-based service using mobile network)	33%	LAMP (Linux + Apache + Mysql + Php/Perl/Python) or WAMP (Windows + Apache)	22%
		Others (e.g. Python, C)	2%
Wireless Communication Technology	%	Advanced Planning Tool	%
Wireless LAN	51%	Forecasting	43%
Mobile Network (e.g. GPRS, HSPDA)	42%	Optimization	29%
Others (e.g. ZigBee, Bluetooth, TETRA, Mobitex)	7%	Simulation	29%
Data Interchange Technology	%		
EDI	37%		
XML (e.g. RosettaNet, UBL, ebXML)	60%		
Others	3%		
Service Architecture	%		
Web Service and SOA	57%		
SaaS (Software as-a Service) / Software on-demand	25%		
Software Appliance	18%		



# 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 1-D barcode, GPS, Wireless LAN, XML, Web Service & SOA, SQL Server, Java, and Forecasting were the most popular types of technologies adopted in participants' solutions/products.

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

Categories	Type of Technologies	%
Auto-id Identification Technology	1-D barcode	37%
Positioning Technology	GPS	39%
Wireless Communication Technology	Wireless LAN	51%
Data Interchange Technology	XML (e.g. RosettaNet, UBL, ebXML)	60%
Service Architecture	Web Service and SOA	57%
RDBS	SQL Server	31%
Development Platform	Java (J2EE and others)	45%
Advanced Planning Tool	Forecasting	43%

### 2.3 Analysis on Technology Adoption

With reference to the previous section (Section 2.2), participants' technology adoption process was further examined. Participants' core products/solutions, their business mode (Re-sell or self-develop); the brands they were reselling were examined.

#### 2.31 Technology Adoption

In this part, participants were asked to give opinion on whether to adopt the technologies mentioned in the previous section (Section 2.2). As this was an open-ended type of question, respondents were welcome to indicate more than one technology depending on their actual business operation. Among the 26 respondents, the findings suggested that RFID ranked highest for 22%. The findings were summarized in the following table.

Table 2.31  
Summary of Technology Adoption

Whether to Adopt the Above Technologies in the Solution	%
RFID	22%
Adopt Web Solution	10%
Wireless - Mobile ( 3G )	6%
Business Intelligence	6%
SaaS	6%
WMS	4%
Wireless - GPRS	4%
Wireless-WiFi	4%
2-D Barcode	4%
ZigBee	4%
Bar code solution	4%
WiMax	4%
SOA	3%
Forecasting	3%
Optimization	2%
Developing Platform	2%
System Architecture	2%
Data Interchange	2%
RTLS / LBS	2%
Freight	2%
3PL	2%
SCM	2%
Total	100%



# BROAD COVERAGE FINDINGS

## 2.32 Benefits from the Technologies

While asking the benefits from adopting the technologies, 36% of the respondents believed that it appeared as a new revenue stream; whereas 14% believed that it could increase their competitive advantage. The findings were summarized in the following table.

Table 2.32

**Summary of Benefits from Technology Adoption**

Benefits from the technologies	%
Increase Revenue Stream	36%
Increase Competitive Advantage	14%
Increase Operation Efficiency	12%
Improves Data Quality	10%
Easy Integration	7%
Enhance Management Capability	7%
Adapt the Market Trend	5%
Keep Leading Position in Market	5%
User Ease of Use	2%
Much reliable Architecture	2%
Total	100%

## 2.33 Analysis on Core Products

In this part, participants were asked to give opinions of the core products/services offering to their clients. A total of 23 respondents provided information on that part. As it was an open-typed question, respondents were encouraged to indicate any services/products based on their actual business operation. The findings were fragmented; still the top three were shortlisted and they were (1) RFID Related (20%); (2) Warehouse Management (11%) and Ocean/Freight Forwarding (7%).

Table 2.33

**Summary of Core Products/Services**

Core Products (Major)	%
RFID Related	20%
Warehouse Management	11%
Ocean/Freight Forwarding	7%
Retailer Management	5%
Mobile + bar code	3%
e-Procurement Platform	3%
Office Automation Services	3%
IT Services	3%
e-Form Solution	3%
Event Management System	3%
System Integration Service	3%
HR	2%
E-Trade Platform	2%
Home Automation	2%
IP Home	2%
Network Security	2%
Web Service	2%
SaaS	2%
Auto-ID	2%
WiFi	2%
GPS	2%
Retailer Management	2%
A-GPS	2%
Business Collaboration Solution (Commercial Document Exchange)	2%
ERP	2%
Asset Management System	2%
Document Management System	2%
Library Management System	2%
Biometrics Products	2%
Total	100%



## BROAD COVERAGE FINDINGS

### 2.34 Analysis on Business Mode

In this part, participants' business mode was examined. A total of 27 respondents provided information. The finding suggested that Self Development with Resell was the most common business mode, which accounted for 56%, it was followed by Self Development which accounted for 37%.

Table 2.34

**Summary of Business Mode**

Business Mode	Number of Respondents	%
Self Development	10	37%
Sell Development + Resell	15	56%
Self Development + Collaboration with Partners	2	7%
Total	27	100%

### 2.35 Analysis on Brand Reselling

In this section, participants were asked the brands they were reselling. 12 respondents provided information. The findings suggested that Symbol, Zebra, and IBM were the most popular brands that the respondents were reselling. Detailed findings were summarized in the following table.

Table 2.35

**Summary of Brand Reselling**

Brand to Resell	%
Symbol, Zebra	17%
IBM	13%
Datalogic	10%
Accounting System-MRB and Quickbook	4%
Maximizer CRM Software	4%
Dialogic	4%
Avaya	4%
Envox	4%
Audio Code	4%
HP	3%
CISCO	3%
CSL	3%
Motorola	3%
Spirit	3%
Alien	3%
NEC	3%
Spirit	3%
Psion Teklogix	3%
Datamax	3%
Simens	3%
Microsoft System	3%
Total	100%





# BROAD COVERAGE

## FINDINGS

### 2.36 Analysis on R&D on New Technology

In this part, participants were asked to give opinion on the technologies they would invest on R&D. Among the 14 respondents who shared their viewpoints, the findings suggested that RFID (Sensor embedded advice) was the top R&D technology accounted for 15%; it was followed by Web2.0 which accounted for 7%.

Table 2.36

**Summary of R&D on New Technology**

R&D on New Technology	%
RFID ( Sensor embedded active )	15%
Web 2.0	7%
Web service	4%
SOA	4%
E-Sealing	4%
Document Management Solution	4%
Track and Trace Solution	4%
RFID-enabled anti-counterfeiting tech and apps	4%
3G IVRS	4%
3G CCTV	4%
Reporting Services	4%
Office Automation	4%
e-Procurement	4%
HR Management System	4%
Security on E-Trading	4%
WMS	4%
Asset Management Solution	4%
RF Related	3%
Zigbee	3%
WiMax	3%
G-GPS	3%
A-GPS	3%
Biometrics Product Design	3%
Total	100%

### 2.37 R&D Budget and Collaboration with University

In this section, participants were asked to share their experience on R&D collaboration with local Universities. All 30 respondents provided information and the findings indicated that 9 of them (30%) have experience in collaborating with local Universities, namely The Hong Kong Polytechnic University, The Hong Kong University of Science and Technology, The University of Hong Kong, The Chinese University of Hong Kong, etc. Among them, 4 of 9 (44%) the R&D experience with University was positive; whereas 3 out of 9 (33%) indicated that they have encountered problems while working with University. Some difficulties included the deliverable was not commercial-oriented enough; conflict of interests; difficult to comprise, etc.

Table 2.37

**Experience in Collaboration with Local University**

	Number of Respondents	%
Experience in Collaboration with Local University	9	30%
Positive Experience	4	44%
Negative Experience	3	33%
No Comments	2	22%



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### 3 Analysis on Target Customer/Industry Group

In this section, participants' Main Customers, the Departments they were mostly dealing with, Project Size and Business Process were examined.

#### 3.1 Analysis on Main Customers

A total of 30 participants provided information on their main customers. Some of the participants provided more than one main customer group and their replies were summarized in the following table. Among the various customer groups, 3rd/4th Party Logistics Service were the most popular group in which 22 out of 30 respondents (28%) were serving this customer segment; whereas Manufacturing is the second most popular segment in which 17 of out 30 (21%) respondents were serving this customer group.

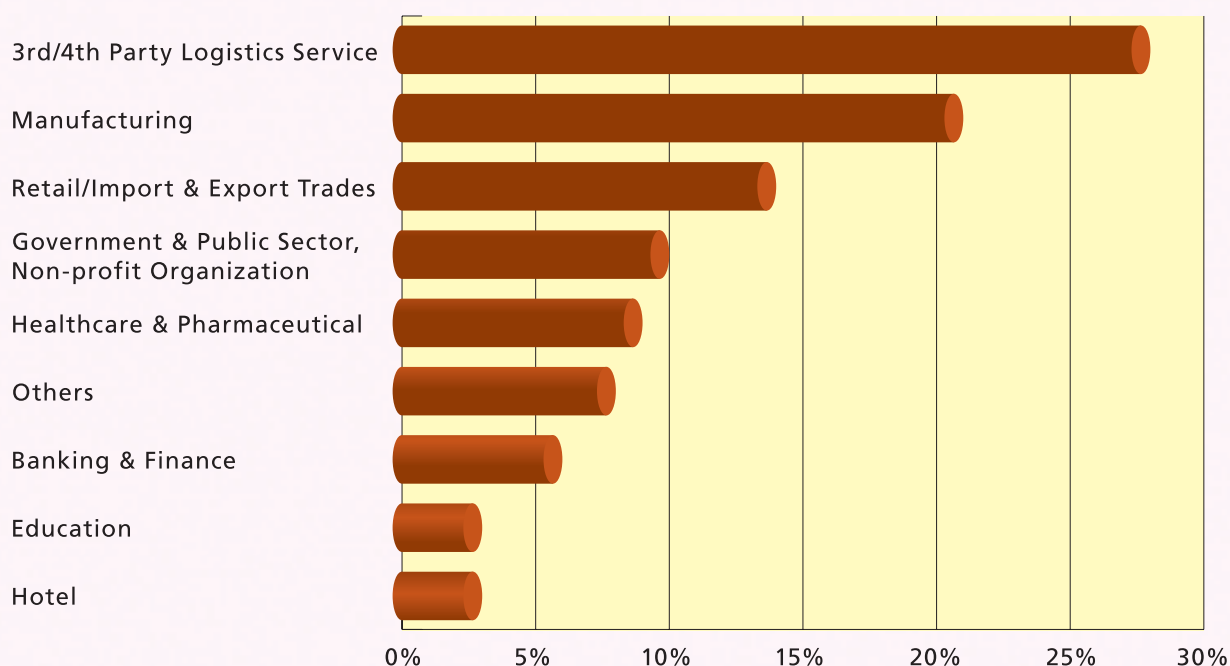
Table 3.1

**Analysis on Main Customers**

Main Customers	%
3rd/4th Party Logistics Service	28%
Manufacturing	21%
Retail/Import & Export Trades	14%
Government & Public Sector, Non-profit Organization	10%
Healthcare & Pharmaceutical	9%
Others	8%
Banking & Finance	6%
Hotel	3%
Education	3%
Total	100%

Chart 3.1

**Analysis on Main Customers**





# BROAD COVERAGE

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### 3.2 Analysis on Departments

A total of 29 participants provided information on this section. Participants were allowed to provide more than one department depending on their actual business operation. Their indications were summarized in the following table. Among the various departments, Operation Department was the most popular department (24%); whereas Management was the second most popular department (22%).

Table 3.2  
**Analysis on Departments**

Which Department	%
Operation	24%
Management	22%
IT Support	13%
Warehouse Operation	9%
Account/Finance	7%
Administer	7%
Sales and Marketing	5%
Production	5%
Customer Service	3%
Purchasing	1%
HR	1%
Service Partner	1%
End-user	1%
Total	100%

### 3.3 Analysis on Project Size

A total of 28 participants provided information on their project size. 50% (14 out of 28) respondents stated that the project size in momentary value fall in the range HK\$ 500,000-HK\$1,000,000. The second most common project size range was under HK\$500,000, which accounted for 25% (7 out of 28 respondents).

Table 3.3  
**Analysis by Project Size**

Project Size ( \$ Million )	Number of Respondents	%
< 0.5M	7	25%
0.5M-3M	14	50%
3M-6M	3	11%
> 6M	4	14%
Total	28	100%

From Table 3.3, there were 7 companies whose project size fall into the range of over HK\$3M; with reference to the information provided in Section 1.2 (Analysis on Employee Size), it was noteworthy to correlate that 5 out of these 7 companies (71%) were those sizable companies with employee over 100, (2 of them have employee over 1,000.).



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### 3.4 Analysis on Project Cycle

A total of 30 participants provided information on their average project cycle. 57% (17 out of 30) respondents stated that their average project cycle was between 6 to 12 months. The second common project cycle was project under 5 months, which accounted for 30% (9 out of 28 respondents).

Table 3.4  
Analysis by Project Cycle

Project Cycle	Number of Respondents	%
0 - 5 Months	9	30%
6 - 12 Months	17	57%
13 - 24 Months	4	13%
Total	30	100%

### 3.5 Analysis on Project Member

A total of 29 participants provided information on this section. 48% (14 out of 29) respondents stated that their average project member was between 1 to 5 staffs; whereas was followed by the range of 6 to10 staffs, which accounted for 45% (13 out of 29 respondents).

Table 3.5  
Analysis by Project Member

Project Member	Number of Respondents	%
1-5	14	48%
6-10	13	45%
11-20	2	7%
Total	29	100%



# BROAD COVERAGE

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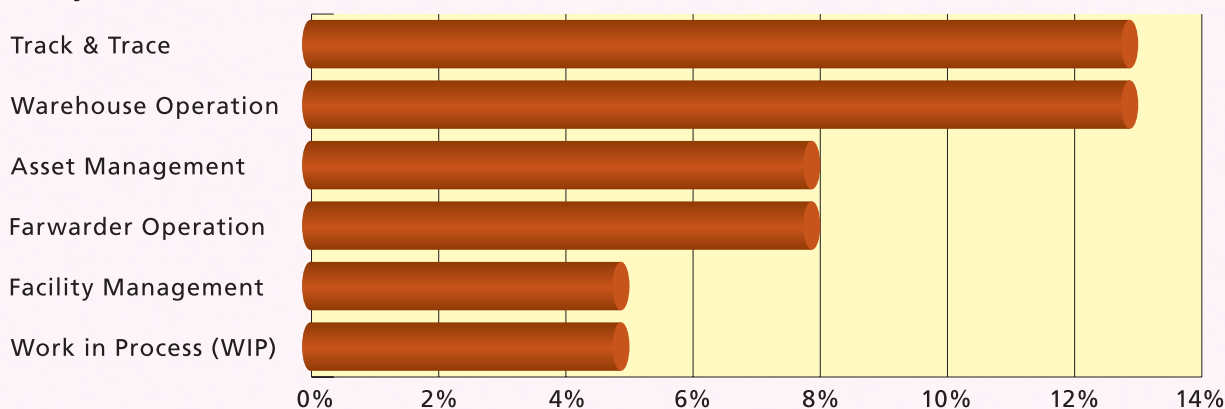
### 3.6 Analysis on Business Process

A total of 17 participants provided information on this section. Participants were allowed to provide more than one business process to be used depending on their actual business operation. Their replies were summarized in the following table. Among the various business processes, Warehouse Operation and Track & Trace were the two most popular business processes (both of them accounted for 13% respectively); whereas followed by Forwarder Management and Asset Management, (both of them accounted for 8% respectively).

Table 3.6  
Analysis on Business Process

Business Process to be Used	%
Warehouse Operation	13%
Track & Trace	13%
Forwarder Operation	8%
Asset Management	8%
CRM	5%
Office Automation	5%
Work in Process (WIP)	5%
Facility Management	5%
Accounting	3%
Fuel Oil Procurement Process	3%
General IT support	3%
Event Management	3%
Customer Caring Service	3%
Billing	3%
Online Payment	3%
Procurement	3%
Good Delivery	3%
Material Management	3%
Labor Management	3%
Product Production	2%
Truck Management	2%
Fleet Management	2%
Total	100%

Chart 3.6  
Analysis on Business Process







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### 4 Analysis on 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

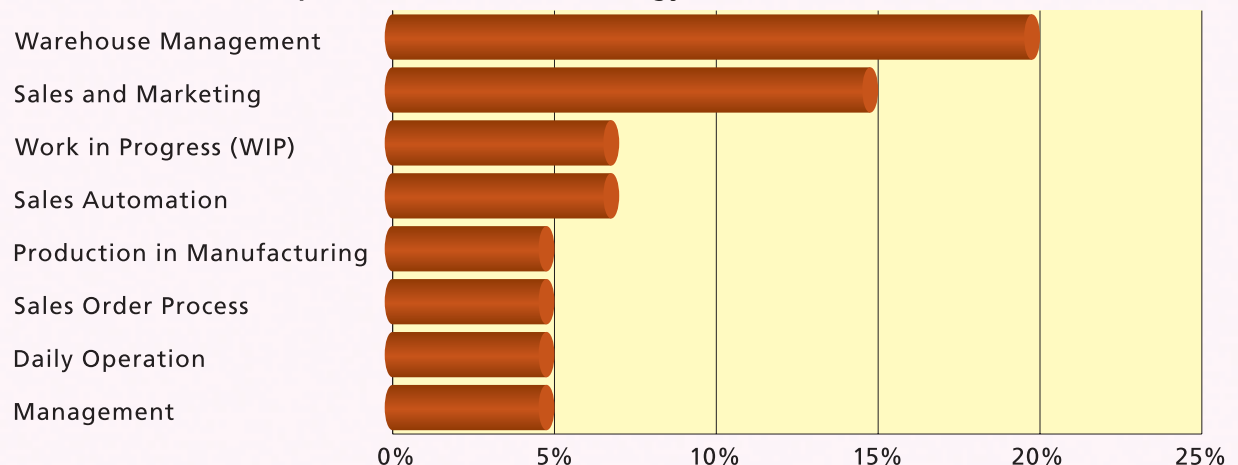
In this section, respondents were asked from a solution provider's view, the problems of I.T. adoption faced by their customers. Furthermore, I.T. adoption on business operation, technical, human resources, finance, external perspectives were examined.

##### 4.11 Business Operation: Business Process Adopts the Least I.T. Technology

In this part, participants were asked from their perception from their clients, what business process adopts the least I.T. technology. A total of 26 respondents provided information on this part. It was found that Warehouse Management, Sales & Marketing, Work in Progress (WIP) were the 3 most areas that they perceived the clients adopts the least I.T. technology. They accounted for 20%, 15% and 7% respectively.

Chart 4.11

**Business Process Adopts the Least I.T. Technology**





## BROAD COVERAGE

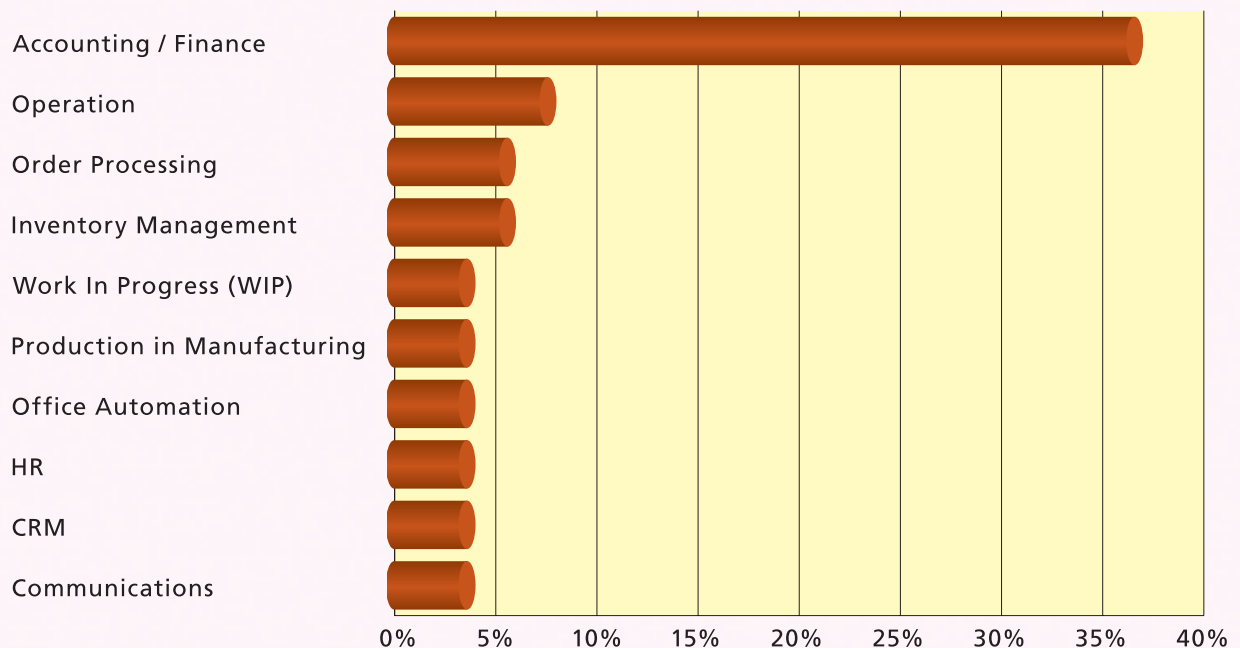
### FINDINGS

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

In this part, participants were asked from their perception, what business process relies heavily on I.T. Technology by their clients. A total of 27 respondents provided information on this part. It was found that Accounting/Finance, Operation, Order Processing and Inventory Management were the 4 most rated areas that they perceived the clients adopts the least I.T. technology. They accounted for 37%, 8% and 6% respectively.

Chart 4.12

##### Business Process Heavily Relies on I.T. Technology

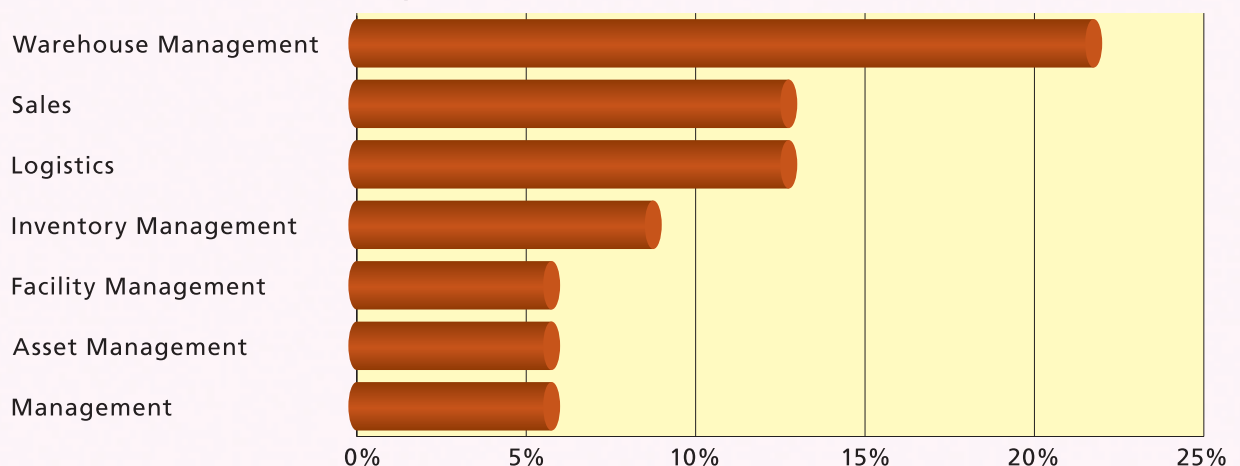


#### 4.13 Business Operation: Business Process Should Adopt I.T.

In this part, participants were asked from their perception, what business process should adopt I.T., but yet to be applied by their clients. A total of 22 respondents provided information on this part. It was found that Warehouse Management, Sales and Logistics were the 3 key areas that they perceived the clients should adopt I.T. The three areas accounted for 22%, 13% and 13% respectively.

Chart 4.13

##### 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 27 respondents provided information on this part. The finding and ranking was (1) Barcode/RFID (32%); (2) Data Interchange Technology (28%); (3) Wireless Technology (23%). The findings were summarized in the following table.

Table 4.14

Analysis on Widely Adopted Technologies

Technologies	%
Barcode/RFID	32%
Wireless Technology, e.g. Wi-Fi, GPRS, EDGE, UMTS	23%
Web service, SaaS	6%
Positioning Technology, e.g. RTLS, GPS	11%
Data Interchange technology: EDI/XML	28%

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

In this part, participants were asked from their perception, what solutions have been widely adopted in customer's business process. A total of 27 respondents provided information. The finding and ranking was (1) ERP (33%); (2) WMS (31%); (3) MRP (23%). The findings were summarized in the following table.

Table 4.15

Analysis on Widely Adopted Solutions

Solutions	%
WMS	31%
SCM	13%
ERP	33%
MRP	23%

### 4.16 Human Resources Perspective

In this part, participants were asked about their perception towards Human Resources. A total of 28 respondents provided information on this part. The findings were (1) No Influence (27%); (2) Frequent Change on Requirement (17%); (3) Reluctance to Learn/Adopt New Technologies (23%). The findings were summarized in the following table.

Table 4.16

Analysis on Adoption from HR Perspective

Factors from HR Perspective	%
No Influence	27%
Frequent Change on Requirement	17%
Reluctance to Learn/Adopt New Technologies	17%
Lack of Appropriate Person to Convert Business Users Requirement to Technique Requirement	10%
Weak of Technology Knowledge	7%
Conflict of Interest from Departments	7%
Management Issue	7%
Difficult to Change Existing Practice	3%
Personal Relationship Factor	3%
Old Industry People Lack of Interest	3%



# BROAD COVERAGE

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### 4.17 Finance Perspective

In this part, participants were asked about their perception from Finance Perspective. A total of 28 respondents provided information on this part. The finding and ranking was (1) Difficult to Present ROI (15%); (2) Believed that Appropriateness and Functionality are More Important than Cost (13%); (3) Limited Budget on IT Solution (9%). The findings were summarized in the following table.

Table 4.17

#### Analysis on Adoption from Finance Perspective

Factors from Finance/Economic Perspective	%
Difficult to Present ROI	15%
Believed that Appropriateness and Functionality are More Important than Cost	13%
Limited Budget on IT Solution	9%
No Influence	6%
Company Business Condition	4%
Agreed that Cost is the Most Important Factor	2%

### 4.18 External Perspective (i.e. Government Regulations)

In this part, participants were asked about their perception towards External Factors. A total of 26 respondents provided information on this part. The finding and ranking was (1) Believed that Government Regulation will have Positive Effect on IT Adoption (58%); (2) No Significant Effect (35%). The findings were summarized in the following table.

Table 4.18

#### Analysis on Adoption from External Factors

External Factor Perspective	%
Believed that Government Regulation will have Positive Effect on IT Adoption	58%
Believed that there will be No Significant Effect	35%
Believed It will Bring Both Positive and Negative	4%
Other Factors: Pressure From Competitors	4%
New Labor Law in PRC	0%



## BROAD COVERAGE FINDINGS

### 4.2 Analysis on Motivating Factors

In this part, participants were asked to rate the most important motivating factors when deciding to enhance or upgrade their technological capabilities and customer offering (1-Least important; 5-Most important). For each factors answered by the participants, we had selected those who rated 4 or 5 for that particular factor for analysis. The findings were summarized in Table 4.2.

The findings suggested that the majority participants believed I.T. applications can Improves Operational Efficiency (83%); respondents believed I.T. could Improves Customer Service (64%). Participants provided information were summarized in the following table.

Table 4.2  
Analysis on Motivating Factors

Motivating Factors	Number of Participants	Weighed Important to Very Important	%
Improves Operational Efficiency/Productivity	30	25	83%
Improves Customer Service	28	18	64%
Improves Competency	29	16	55%
Direct Customer Request	30	15	50%
Reduce Labor Costs	28	12	43%
Improves Data Quality	28	16	57%
Improves Decision Making	27	17	63%
Helps Manage the Operation	29	20	69%
Save Time	29	19	66%
Clear ROI	28	10	36%
Reduce Human Error	29	19	66%
Pressure from Competitors	28	10	36%
Industry Trend	28	8	26%
Enhance Cooperation with Business Partner (Data/Information Sharing)	28	9	32%

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

In this part, participants were asked to rate the most important concern areas on I.T application from the customers' perspective they perceived (1-Least important; 5-Most important). For each factors answered by the participants, we had selected those who rated 4 or 5 for that particular factor for analysis. The findings were summarized in Table 4.3.

In a total of 30 participants' provided information, the majority participants believed the following 3 concerns were the most important: (1) Solution Appropriateness (63%); (2) Price (47%); (3) Capability of Solution Vendor (30%). Participants provided information were summarized in the following table.

Table 4.3  
Analysis on Concerned Areas from Customers' Perspective

Concerned Areas	Number of Respondents Important to Very Important	%
Solution Appropriateness	19	63%
Price	14	47%
Capability of Solution Vendor	9	30%
Technology	6	20%
People	5	16%
Time	4	14%





## BROAD COVERAGE FINDINGS

### 4.4 Analysis on Importance of Relationship Maintenance

In this part, participants were asked 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. The findings were summarized in Table 4.4.

In a total of 30 participants' provided information, the finding suggested that the three most important factors on relationship maintenance were (1) Appropriate Solution (93%); (2) Successful Implementation of Solution (90%); (3) Professional Solution Consulting (87%).

Table 4.4

**Analysis on Importance of Relationship Maintenance**

Attributes of Relationship Maintenance	Number of Respondents Important to Very Important	%
Appropriate Solution	28	93%
Professional Solution Consulting	26	87%
Innovative Technology/Solution	17	57%
Successful Implementation of Solution	27	90%
Low Price	9	30%
Short Project Cycle	6	20%
Good After Sales Service	23	76%
Personal Relationship with Customers	17	59%

### 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 30 respondents provided information on this part, 18 respondents indicated that their failure rate was less than 10%; whereas 8 respondents (27%) stated their failure rate was between 10%-30%. The findings were summarized in the following table.

Table 4.51

**Summary of Failure Rate**

Failure Rate	Number of Respondents	%
Less than 10%	18	60%
10-30%	8	27%
Over 30%	4	13%
Total	30	100%



## BROAD COVERAGE FINDINGS

### 4.52 Analysis on Reasons of Failure

In this section, the reasons of failure were examined. 14 respondents provided information, the findings suggested that Unclear (Frequent Change) User's Requirement was the main reason for failure, it represented 28% of the respondents; it was followed by Bad Project Management, it was represented by 21%. The findings were summarized in the following table.

Table 4.52  
Analysis on Reasons of Failure

Reasons of Failure	%
Unclear (Frequent Change ) User's Requirement	28%
Bad Project Management	21%
Salesman Over-claim the Product	7%
Time Management	7%
Customer Budget Issue	7%
Reluctance of Customer/User to Adopt	7%
Management/Personnel Issue	7%
Not familiar with User Business Flow	3%
Customer's Higher Expectation	3%
Limited R&D Capability	3%
Lack of Relevant Knowledge	3%
Poor Solution Appropriateness	3%
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 attributes answered by the participants, we had selected those who rated 4 or 5 for that particular factor for analysis. The findings were summarized in Table 4.6.

The findings suggested that the three most urgent areas perceived by the respondents for improvement were (1) Improvement Time Management of Service Delivery (53%); (2) Better Technology Alternatives with Less Constraints (53%); (3) Better After Sales Services (40%); it was noteworthy to find out Pricing ranked the lowest among the 4 factors (33%).

Table 4.6  
Analysis on Urgency for Improvement

Urgency for Improvement	Number of Respondents Urgent to Most Urgent	%
Improve Time Management of Service Delivery	16	53%
Better Technology Alternatives with Less Constraints	16	53%
Better After Sales Services	12	40%
Pricing	10	33%



# BROAD COVERAGE

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### 5 Application 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 for their customers were examined. Participants were asked to rate the attributes in terms of the degree of challenge (1=Less 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. The findings were summarized in Table 5.1.

The finding suggested that the three biggest challenges were Limited Budget, Shortage of Skilled I.T. People from Customers or Internal, Project Management Problems respectively.

- Limited Budget (74%)
- Shortage of Skilled I.T. People from Customers or Internal (50%)
- Project Management Problems (43%)

Table 5.1

**Summary of Participants' Perceived Challenges**

Factors	Total Respondents	Number of Respondents	Challenging to Very Challenging
Limited Budget from the Customers	27	20	74%
Shortage of Skilled I.T. People from Customers or Internal	30	15	50%
Project Management Problems	28	12	43%
Lack of industry/government support	27	10	37%
Shortage of Appropriate Technology or Solution	28	10	36%
Data Integration with Customers' Current System	28	9	32%
Domain Knowledge of Solution Vendors	28	8	29%
Difficult to cope with Rapid Technological Changes and Business Environment	28	6	21%
Complexity of Application Software	26	5	19%
Supply Issues for Reseller	26	4	15%



# BROAD COVERAGE

## FINDINGS

### 6 Industry Trends/Characteristics

In this section, participants were asked to give opinions on the trend of technology or solution; after that, their relevant development plan to copy with such trend; the uniqueness of such solutions; In addition, they were asked the trend of customer's business process and finally, their experience in R&D were examined.

#### 6.1 Trend of Technology or Solution

In this part, participants were asked to share their viewpoints on the trend of technology or solution. In all 30 participants' provided information, the two most obvious trends were (1) Wireless, Mobile (19%); (2) RFID (19%). The detailed findings were summarized in the following table.

Table 6.1  
Analysis on Trend of Technology or Solution

Trend of Technology/Solution	%
Wireless, Mobile	19%
RFID	19%
SoA	9%
SaaS	7%
Collaboration/Integration	5%
Security	5%
Web Application	5%
WMS	5%
LTLS	5%
Senor Technology	5%
S/W	5%
Globalization	2%
Integrated w/ Business Process Management System (BPMS)	2%
Open Source	2%
Auto-ID	2%
A-GPS	2%
Transform from IC to System / Finished Product	2%
Total	100%



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### 6.11 Development Plan to Cope with the Trend

In this part, participants were asked to share their development plan on how to cope with the Trend they indicated in Section 6.1. From 23 participants' provided information, the majority stated that they would increase R&D investment (48%); whereas 10% respondents stated that they would focus more on Web2.0 development. The detailed findings were summarized in the following table.

Table 6.11

#### Analysis on Development Plan to Cope with the Trend

Development Plan to Copy With the Trend	%
R&D Investment	48%
Web2.0	10%
.Net08	4%
Reporting Functions	4%
SoA	4%
Solution Provider	4%
Enhance 3G Apps	4%
Office Automation	4%
WMS	3%
Event Management	3%
LTLS	3%
SaaS	3%
WiFi	3%
Outsourcing	3%
Total	100%

### 6.12 Uniqueness of Solution

In this part, participants were further asked to give opinions on the uniqueness of the solution to cope with the trend. There were 19 participants provided information, the majority stated Customization; RFID-enabled and Integration were the 3 most distinctive uniqueness of their solution; which rated 35%, 17% and 13% respectively. The detailed findings were summarized in the following table.

Table 6.12

#### Analysis on Uniqueness of Solution

Uniqueness of Solution	%
Customization	35%
RFID-enabled	17%
Integration	13%
Domain Knowledge	9%
Reliability	9%
SoA	4%
Comprehensive	4%
Reporting	4%
SaaS Solution to SME	4%
Total	100%





## BROAD COVERAGE FINDINGS

### 6.13 Trend of Customer's Business Process

In this part, participants were asked to give opinions on the trend of customer's business process. In all the 23 participants' provided information, the top three trends observed were (1) Reporting Feature to Facilitate Management; (2) Wireless; and (3) Collaboration; they accounted for 25%, 22% and 16% respectively. The detailed findings were summarized in the following table.

Table 6.13

**Analysis on the Trend of Customer's Business Process**

Trend of Customer's Business Process	%
Reporting Feature to Facilitate Management	25%
Wireless	22%
Collaboration	16%
RFID on asset management	13%
Internet	9%
Tracking	6%
CRM	3%
Inventory Management	3%
Security Level Upgrading	3%
Total	100%

### 6.14 R&D of Technology

In this part, participants were asked to give opinions on whether the focus of R&D of technology development can help on the above issues. In all 29 participants provided information on that part, 28 respondents (97%) believed that R&D of technology development can help on the issue, while only 1 respondent (3%) disagreed.

Table 6.14

**Summary of R&D to Address Industry Issues**

R&D of Technology Development can Help on the Above Issues	Number of Respondents	%
Yes	28	97%
No	1	3%

## 6.2 Analysis on RFID Perception

In this section, participants were asked to share their opinion on their perception of RFID technology and its application. Areas include how their customers perceive RFID technology and its application in their own industries/companies; their industry view towards RFID; the barriers to the applications of RFID technology were examined. Finally they were asked to give opinion on the necessary timeframe before RFID become popular in the market.



## BROAD COVERAGE FINDINGS

### 6.21 Perception of RFID from Customer's Viewpoint

In this part, participants were asked their perception of RFID from their customer's viewpoints. A total of 29 participants provided information. As it was an open-ended type questions, participants could share more than one opinion. 31% of the respondents agreed that RFID is a Trend; whereas 19% respondents believed High Cost was widely perceived by their customers. The findings were summarized in the following table.

Table 6.21

#### Analysis on Perception of RFID from Customer's Viewpoint

Perception of RFID from Customer's Viewpoint	%
Positive	
Agreed RFID is a Trend	31%
Increase Operation Efficiency, Reducing Human Error	10%
Enhance Corporate Image	5%
Facilitate Data Collection Function	7%
Negative	
High Cost	19%
Insufficient Knowledge to RFID	14%
Low Accuracy Rate	5%
Not Full Automation	2%
Middle Level Reluctance	2%
Close Loop Issue	5%
Total	100%

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

In this part, participants were asked their I.T. Industry viewpoints towards RFID. A total of 25 participants provided information. As this was an open ended type questions, participants could share more than one opinion. 16% of the respondents believed that RFID could facilitate data collection function; whereas 35% believed in current stage, RFID was still immature or ineffective. The findings were summarized in the following table.

Table 6.22

#### Analysis on Perception of RFID from I.T. Industry's Viewpoint

Perception of RFID from IT Industry Viewpoint	%
Positive	
Facilitate Data Collection Function	16%
Applicable to Various Industries & Applications	13%
Increase Operation Efficiency, Reducing Human Error	10%
Technology is Mature	4%
Increase Revenue Stream	3%
Negative	
Not Mature, Ineffective	35%
Low Usage in Logistics Industry	6%
Cost is High	4%
Lack of Global Standard	3%
Lack of Government Support	3%
Close Loop	3%
Total	100%



## BROAD COVERAGE FINDINGS

### 6.23 Barriers of RFID

In this part, participants were asked to give opinion on the barriers of the development of RFID. A total of 28 participants provided information. As this was an open ended type questions, participants could share more than one opinion. 44% of the respondents believed that Cost was the biggest barrier for the development of RFID; whereas Customer Habit ranked second, it represented 9%. The findings were summarized in the following table.

Table 6.23

#### Analysis on Barriers of RFID

Barriers for RFID Development	%
Cost	44%
Customer Habit	9%
Accuracy	7%
Technical Limitation on Antenna & Chip Design	7%
Lack of Global Standard	7%
Education Levels of Users	7%
Physical Limitation on Performance	7%
Lack on Appropriate Applications on Market	5%
Lack of Government Support	4%
Data Security	3%
Total	100%

### 6.24 How Long RFID Become Popular

In this part, participants were asked to give opinion on the necessary timeframe require RFID become popular in the industry. In all the 27 respondents provided information, 20 out of 27 (74%) believed that RFID would become popular in less than 10 years; whereas 5 out of 27 (19%) believed that it would take more than 10 years; and there were 2 participants (7%) believed that RFID was already popular. The findings were summarized in the following table.

Table 6.24

#### Analysis on RFID to become Popular

How Long Will RFID Become Popular	Number of Respondents	%
Already Popular	2	7%
Less than 10Y	20	74%
More than 10Y	5	19%
Total	27	100%



# BROAD COVERAGE

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### 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 by Comments on LSCM's Value

Participants were invited to comment on the value of LSCM. In all 28 participants' provided information, the majority all of them (100%) acknowledged the value of LSCM.

Table 7.1a

**Analysis by Comments on LSCM**

Government Support Areas/Respondents	Number of Respondents	%
Respondents agreed the Value of LSCM	28	100%

Furthermore, participants were asked if they were interested in participating in R&D projects and their preferences on the following two sponsorship schemes:

1. If government is willing to support 90% over the total cost of such R&D project, are you willing to invest together with other companies within the industry the remaining amount and share the project deliverables;
2. If government is willing to support 50% over the total cost of such R&D project, are you interested in invest the remaining amount and own the IP rights of the project deliverables.

The findings were summarized in the following table.

Table 7.1b

**Government Sponsorship R&D Scheme rated by participants**

Government Sponsored Scheme/Respondents	Number of Respondents	%
Interested in Participating in R&D Projects	25	93%
Government support 90% Scheme	24	89%
Government support 50% Scheme/Company Own the IP right	20	74%

In a total of 27 respondents' provided information, they all showed interests in participating in the government lead R&D project:

- 93% shown interests in Participating in R&D Projects
- 89% shown interests in the Government Support 90% Scheme
- 74% shown interests in Government Support 50% Scheme, Company Own the IP right



# BROAD COVERAGE FINDINGS

## 7.2 Interested Areas on LSCM Roadmap

In a total of 27 respondents, they were asked to indicate the interested areas of LSCM R&D roadmap:

### RFID Hardware & System

13 out of 27 (48%) participants indicated that they are interested in Theme 1 “Low Cost RFID Tag Manufacturing Techniques” is set on easing the cost issue of adoption and deployment for RFID.

### Networking & Infrastructure Technologies

12 out of 27 (44%) participants indicated that they are interested in Theme 6 “Enabling Technologies for Enterprise e-Logistics Internetworking”, fostering the use of IT for logistics integration, addresses the common problem in industry for effective and efficient business process integration across enterprise boundary.

### Applications & Decision Support Technologies

18 out of 27 (67%) participants indicated that they were interested in Theme 9 “Sensor-enabled Logistics Applications” will enable automation in cargo monitoring; whereas 16 participants (59%) were interested in Theme 10 “Positioning Technologies and Optimization for Asset Tracking and Monitoring” will add to the capability of real-time cargo tracking.

Table 7.2  
Interested Areas of LSCM R&D Roadmap

RFID Roadmap	Number of Respondents	%
<b>RFID Hardware &amp; System</b>		
Theme 1 “Low Cost RFID Tag Manufacturing Techniques” is set on easing the cost issue of adoption and deployment for RFID.	13	48%
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.	12	44%
Theme 3 “RFID Testing and Qualification” targets for helping users to test and select appropriate RFID solutions to best fit their use.	9	33%
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.	12	44%
<b>Networking &amp; Infrastructure Technologies</b>		
Theme 5 in the infrastructure technologies track steers for low-barrier adoption of logistics IT with the approach of “On-Demand Technologies for Logistics Application Software Service Platforms”	10	37%
Theme 6 “Enabling Technologies for Enterprise e-Logistics Internetworking”, fostering the use of IT for logistics integration, addresses the common problem in industry for effective and efficient business process integration across enterprise boundary.	12	44%
<b>Applications &amp; Decision Support Technologies</b>		
Theme 7 “RFID Systems for Specific Environments” will foster the development for RFID application systems for niche but critical requirements in common logistics operations.	10	37%
Theme 8 “Enabling Technologies for Mobile Logistics” encourages innovative applications for distribution and delivery which are mobile in nature.	13	48%
Theme 9 “Sensor-enabled Logistics Applications” will enable automation in cargo monitoring.	18	67%
Theme 10 “Positioning Technologies and Optimization for Asset Tracking and Monitoring” will add to the capability of real-time cargo tracking.	16	59%
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.	10	37%





## BROAD COVERAGE RECOMMENDATIONS

Throughout Section 3 to Section 6, participant's services/products, business processes, perceived barriers for adopting I.T. and industry trends are examined. The objectives are to identify the gaps between customer needs and present I.T. solutions. To this end, there are two explicit implications which are summarized below.

### 8.1 Identify the Market Needs

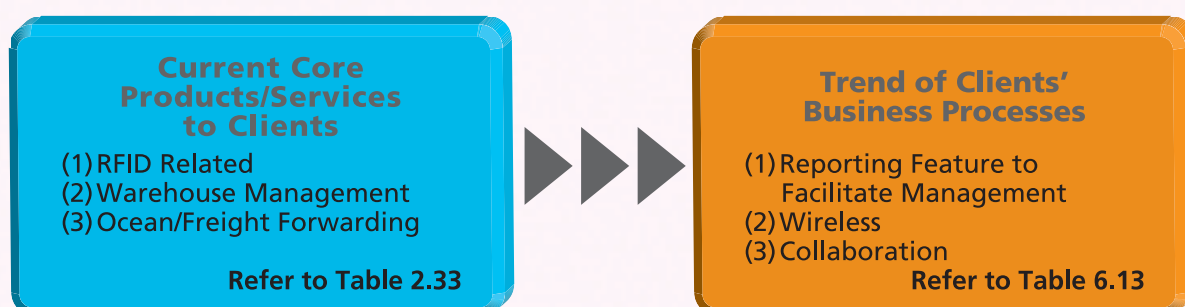
By gathering the respondents' perceived *Trend of Technology versus the Trend of Customer's Business Process*, it implies another gap which shows the market expectation. In Section 6.1, participants were asked to share their viewpoints on the trend of technology or solution. In all 30 participants' provided information, the two most noticeable trends were (1) *Wireless, Mobile* (19%); (2) *RFID* (19%) (*Details refer to Table 6.1*).

In addition, the Trend of Customer's Business Process was examined in Section 6.13. The findings suggested that: (1) *Reporting Feature to Facilitate Management*; (2) *Wireless*; and (3) *Collaboration* were the top three rated trends, they accounted for 25%, 22% and 16% respectively (*Details refer to Table 6.13*). From client side, although it is difficult to measure ROI while adopting I.T. applications, they are looking for I.T. solution to increase efficiency and eventually to serve the purpose of facilitating management decision.

While examining the industry trend and trend of customer's business process on one hand; the current main core products/services offered by the participants (I.T. industry practitioners) were examined in the other. In Section 2.33, participants' core products/services offering to their clients were examined. The findings suggested that the most common three core products/services were (1) *RFID Related* (20%); (2) *Warehouse Management* (11%) and *Ocean/Freight Forwarding* (7%) (*Details refer to Table 2.33*). The diagram below summarized the industry trend versus the existing core products/services. It is noteworthy to pinpoint that apart from enhancing the reporting feature to facilitate management decision and the trend of adopting wireless technology, Collaboration was identified as one of the important trend in clients' business processes. Facing greater consumer expectations and growing competitive pressure, companies should develop collaborative solutions to improve competitive edge. Collecting and sharing the data that drives specific business processes reveal the overall performance of the supply chain and all relevant trading partners, this collection of data provides the foundation for collaborative solutions. To this end, industry practitioners should embrace the collaboration feature since the project design was in stretch.

Diagram 8.1

#### Industry Trend Vs Current Core Products/Services





## BROAD COVERAGE RECOMMENDATIONS

### 8.2 Enhance Services/Products Competency

In Section 3.1, participants' main customer portfolio has been examined. The findings suggested that *3<sup>rd</sup>/4<sup>th</sup> Party Logistics Service* were the most popular client segment which 28% of the total respondents are serving this segment (*Details refer to Table 3.1*); whereas Section 3.6 served to analyze participants client business process, the findings also suggested that among the various business processes, *Warehouse Operation* is the most popular business processes in their clients' business operation, which accounted for 13% of the total respondents (*Details refer to Table 3.6*). However, it is noteworthy to learn that *Warehouse Management* is the least adopted I.T. technology regarded by the respondents (*Details refer to Table 4.11*). It further implied that most of the respondents believed that among the various business process in the client side, *Warehouse Management* should adopt more I.T. applications (22% of the total respondents); which far outweighed the following areas Sales and Logistics, which both of them only accounted for 13% (*Details refer to Table 4.13*).

Diagram 8.2

#### Gap on Market Needs: WMS



In the Supply Chain Management System, Warehouse Management Systems (WMS) plays a vital role by adopting advanced technologies and operating processes which facilitate optimization of all warehousing functions. Implementation of a WMS allows a company to increase its competitive advantage by reducing labor costs, improving customer service, increasing inventory accuracy, and improving flexibility and responsiveness. Furthermore, WMS enables enterprises to manage inventory in real time, with information as current as the most recent order, shipment, or receipt and any movement in between.

### 8.3 Identify and Formulate Strategic Positioning

In Section 5.1, the biggest challenges in applying the current products/solutions for their customers were examined. The finding suggested that the three biggest challenges perceived by the respondents were *Limited Budget* (74%), *Shortage of Skilled I.T. People from Customers or Internal* (50%) and *Project Management Problems* (43%) respectively (*Details refer to Table 5.1*).

I.T. companies should improve its project management efficiency and maintain a sufficient workforce of skilled I.T. staff for enhancing competitiveness. In order to formulate and maintain a distinctive strategic positioning; one should take reference to *Six Fundamental Principles* (Michael Porter's *Six Principles of Strategic Positioning\**). The Principles practically outlined the crucial milestones and objectives for different stage for the development of an I.T. company.



## BROAD COVERAGE RECOMMENDATIONS

- 1. Right goals:** A Company should start with the right goal which leads to superior long-term return on investment (ROI). I.T. companies should focus more on creating strategy in sustained profitability rather than focus on volume or market share. Sales volume and market share do not necessarily bring profits.
- 2. The Value proposition:** A company should deliver a value proposition, or set of benefits, different from those that competitors offer. I.T. companies can focus on delivering certain values to a particular set of uses or a particular set of customers. It will create real economic values for the customers.
- 3. The Distinctive Value Chain:** To establish a sustainable competitive advantage, a company must perform different activities than rivals or perform similar activities in different ways. There are many I.T. vendors selling similar or identical products, if a vendor can customize the products with its services to tailor made a unique system for its customers, it will make the vendor gain competitive advantages over its competitors. For example, while asking the measurements to enhance the uniqueness of services/products in Section 6.12, respondents pinpointed that Customization, RFID enable; and Integration are the top three ranked attributes.
- 4. Trade-offs:** A company must abandon some product features, services, or activities in order to be distinctive. Such trade offs will leave resources for the company to provide other products or services.
- 5. Fit:** Strategy defines how all elements fit together. A strategy involves making choices throughout the value chain that are interdependent; all a company's activities must be mutually reinforcing. Fit not only increases competitive advantage but also makes a strategy harder to imitate. In Section 6.13 of analyzing the trend of customers' business process, Collaboration is one of the important trends summarized from the findings. (Details refer to Section 6.13)
- 6. Continuity:** A company needs continuity of direction to develop unique skills and assets or build strong reputations with customers. Continuous improvement is a necessity, but it must always be guided by a strategic direction.

As one of the key objectives of this research is to identify the market needs and help industrial practitioners to better understand the market trends and enhance service competency. Among the *Six Fundamental Principles* (Michael Porter's *Six Principles of Strategic Positioning*), The *Value Proposition* and the *Distinct Value Chain* are of the most relevant to this study, while in the previous part of this Section (Section 8.1 and 8.2) are the examples of applying these principles.



## BROAD COVERAGE RECOMMENDATIONS

### 8.4 Improve Project Management Efficiency

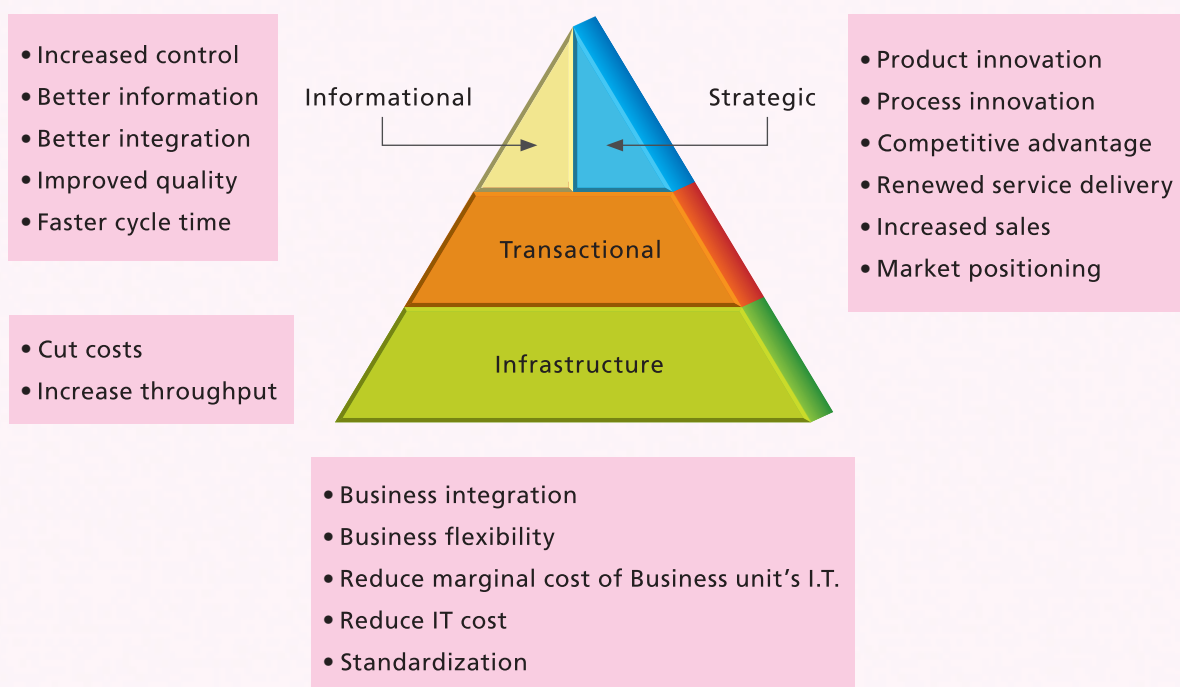
In Section 4.52, respondents' project failure rate and reasons for failure were examined. Although the findings suggested that the majority (60%) had failure rate less than 10%, still 27% of the respondents had failure rate between 10%-30% (*Details refer to Table 4.52*). In the following Section 4.53, the reasons for failure were further analyzed. It was found that the main reasons for project failure was *Unclear (Frequent Change) User's Requirement* and *Bad Project Management*, which accounted for 28% and 21% respectively.

In the following Section 4.6, the findings for Urgency for Improvement Areas suggested that the three most urgent areas required improvement perceived by the respondents were: (1) *Improvement Time Management of Service Delivery* (53%); (2) *Better Technology Alternatives with Less Constraints* (53%); (3) *Better After Sales Services* (87%) whereas the Pricing Factor ranked lowest among the 4 factors (33%) (*Details refer to Table 4.6*).

To effectively improve project management efficiency 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. Peter Weill, director of MIT's Sloan Center for Information Systems Research, and Marianne Broadbent, Group Vice President and Head of Research for Gartner's executive programs worldwide developed a **IT Portfolio Management Model** to help management match I.T. investments to strategic objectives\*. The model identified four broad classifications of I.T. investment: *Transactional, Informational, Strategic and Infrastructure*. By realizing the four broad classifications, it can assist management to identify the project type, resources required, projected returns and potential risk level.

Diagram 8.4

I.T. Portfolio Management Model\*






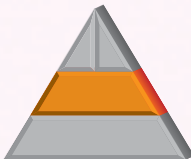
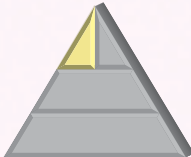
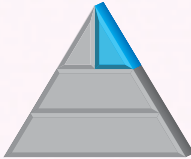


## BROAD COVERAGE RECOMMENDATIONS

Some implications can be drawn from this study to help I.T. companies to shift from the lower side of the Model (Infrastructure service) to upper side of the model (Information/Strategic services). In Section 4.12, the findings suggested that most of the heavily adopted I.T. technology is related to the Infrastructure or Transactional types. For example, Accounting/Finance, Operation, Order Processing are the three business processes that rely heavily on I.T technology. (*Details refer to Table 4.12*); whereas in Section 4.11, the findings suggested that the least adopted I.T. applications are related to Transactional/Information type, according to the findings result, they are Warehouse Management, Sales & Marketing, Work in Progress (WIP) (*Details refer to Table 4.11*) according to the **IT Portfolio Management Model**.

From the above findings, we recommend I.T. companies should move forward by shifting the service from Infrastructure/Transactional oriented ones to Transactional/Information ones. In addition, I.T. companies should consider a strategic move to tap the business needs implied from this study. In Section 4.14, the findings suggested that the widely adopted technologies are more Infrastructure (or some extend of Transactional type) of I.T. (they are: Barcode/Rfid, Data Interchange Technology and Wireless Technology) (*Details refer to Table 4.14*); whereas in Section 4.15, the findings implied that the widely adopted solution actually needs Information/Strategic I.T. applications, like ERP, WMS, etc. (*Details refer to Table 4.45*). From that perspective, I.T. companies should shift forward by providing more Information/Strategic I.T. to support the solutions that customer need most. By such strategic moving upward, it can better tap the market needs and increase throughput, cut costs and achieve better integration.

### (Appendix)

Classifications on I.T. Investment	Description
Infrastructure 	These investments provide a shared and standardized base of capability for the enterprise and lead to greater business flexibility and integration. Infrastructure investments are moderately risky because of their technologies' long life-spans and technical uncertainty.
Transactional 	These IT initiatives process and automate the basic transactions of a company. They are intended to reduce costs and boost productivity and boast an average internal rate of return of 25 percent to 40 percent. These investments have the least risk of the four classes.
Informational 	These systems provide information for managing a company. Their payoff comes from shorter time-to-market, superior quality and the ability to set premium prices. They are moderately risky because companies often have difficulty acting on information to generate business value.
Strategic 	These investments, almost always external-facing systems, pay off in sales growth, competitive advantage and stronger market positioning. But they are the riskiest of the classes: 10 percent will produce spectacular results, but 50 percent will fail to break even.





## BROAD COVERAGE RECOMMENDATIONS

### 8.5 Government R&D Scheme

In Section 7.1, the majority (93%) of the respondents showed interests in participating in R&D projects; among the 27 respondents' provided information, 89% showed interests in the Government Support 90% Scheme; whereas 74% showed interests in Government Support 50% Scheme, Company Own the IP right. In addition, all the respondents (100%) assented to the value of LSCM (*Details refer to table 7.1a*).

### 8.5 Seize the Opportunity Emerge from RFID

The majority of the respondents (74%) believed that RFID would become popular in less than 10 years time (*Details refer to table 6.24*). In Section 6.21, the majority of the respondents' customers (31%) agreed that RFID was a definite trend in the market. (*Details refer to table 6.21*). Nevertheless, relatively high cost (44%) is the main obstacle perceived by the customers for its wide deployment (*Details refer to Table 6.23*). The key perception to RFID from Customer and I.T. Industry's viewpoint are summarized in the following table.

Table 8.5

**Key Perception to RFID from Customer and I.T. Industry's Viewpoint**

Perception to RFID	Customer's Viewpoint	I.T. Industry's Viewpoint
Positive	1. Agreed RFID is a Trend 2. Increase Operation Efficiency, Reducing Human Error	1. Facilitate Data Collection Function 2. Applicable to Various Industries & Applications
Negative	1. High Cost 2. Insufficient Knowledge to RFID	1. Not Mature 2. Low Usage in Logistics Industry

From customers' viewpoint, even though they agreed RFID was a prominent trend, they admitted that they have insufficient knowledge toward the technology. Whereas the I.T. industry's viewpoint suggested that RFID has strong capability in facilitating data collection function. In fact, in terms of sensitivity and durability, RFID has proven advantages over Bar Code and it has greater flexibility and potential in applying to different industries. Nevertheless, industry viewpoints also believed that the current RFID was immature and the adoption in Logistics Industry was low.

Realized that RFID would be the inevitable trend, the respondents indicated that in Section 2.36, RFID (Sensor embedded device) was the highest rated R&D investment area (*Details Refer to Table 2.36*). In fact, LSCM is now carrying out research on various RFID technology topics, they include: "Enhancing the Competitiveness of the Hong Kong Air Freight Forwarding Industry Using RFID and Software Agent Technologies"; "RF-based Technologies for Asset/Personnel Tracking"; "Package-specific RFID Tagging and Embedding Technology"; "Trustworthy RFID Technologies"; "Methodology and Practice"; "RFID-Enabled Real-Time Manufacturing Shop-floor Information Infrastructure for PRD Processing Trade Enterprises"; "Interoperability Technology and Applications for Container RFID and e-seal"; "RFID-enabled Platform Technology for the Integrated Shenzhen-Hong Kong Food Safety and Supply Chain Management Public Information Platform", etc.

#### \*Reference:

1. Information Technology Portfolio Management, Technology Governance Board, State of Iowa
2. Strategy and the Internet by Michael E. Porter – Harvard Business Review, Michael E. Porter, March 2001
3. Generating Premium Returns on Your IT Investments by Peter Weill and Sinan Aral – MIT Sloan Management Review, Peter Weill and Sinan Aral, Winter 2006 Vol. 47 No. 2



GLOBAL / CHINA WATCH



Following the rapid development of economic globalization and rising competition in the international market, technical standardization has become the major tactic among enterprises worldwide. If it is said that an influence of a patent is merely on enterprise level, then a technical standardization will affect the whole industry and even the competitiveness of a country. The application and promotion of RFID technology will become a major driving force for the development of world economy and trade.

### 1. Review of China's RFID Standardization Work

China has laid certain foundation for the standardization research work of RFID technology and application, with research work related to different aspects yet to be implemented. The country established application standards such as "IC Card Module Technical Specification" and "IC Card Application Technology for Construction Industry)" that are widely applied in local industries. A great many tests have been conducted on radio frequency planning. Technical standard-wise, a draft work based on ISO/IEC15693 standard series has basically been completed. At the same time, the China's RFID standardization work has been listed under the plan of defining national standard with reference to ISO/IEC 18000 standard series. In addition, the research work of China's RFID standard framework has also been completed.

At the end of 2003, the Standardization Administration of China approved "National RFID Standards Working Group" but was later dismissed in 2004 because of undisclosed reasons. In 2004, the application of RFID was on the priority list of the national golden card project. In

October 2005, the Ministry of Information Technology established the "RFID Standards Working Group". (Letter [2005] No. 52).

### 2. Introduction to the RFID Standards Working Group of the Ministry of Information Industry

On December 2, 2005, the RFID Standards Working Group of the Ministry of Information Technology was established and called for its first meeting in Beijing with Madam Zhang Qi, Head of Bureau of Electronic and IT Products Administration, as the leader of the Group. The missions of the working group included the conglomeration of strengths from the society to launch research in RFID standard system and to conduct preliminary research and modification works with local enterprises. As of December 31, 2007, the RFID Standards Working Group consisted of 91 members, including 84 full power members and 7 observing members. The Group adopts open, transparent and business coherent ways to deal with all matters. It has seven teams under its umbrella, including: the General Team, the Tag and Reader Team, the Frequency and Communication Team, the Information Standard Team, the Application Team, the Information Security Team and the Intellectual Property Team.

#### 1. Job responsibilities for each team:

- (1) The General Team: Develops the RFID standardized research system in China. It is also responsible for coordination and matching among teams
- (2) The Tag and Reader Team: Determining the physical characteristics, electrical characteristics and testing method of tags and readers



(3) The Frequency and Communication Team: Responsible for the introduction of RFID requirements in China and to establish agreement standard of RFID communications and respective testing methods

(4) The Information Standard Team: Responsible for the formulation of standards such as basic standard, terminology, product code and networking infrastructure

(5) The Information Security Team: Responsible for the formulation of RFID related security standards

(6) The Application Team: Responsible for the formulation of RFID related application standards

(7) The Intellectual Property Team: Responsible for the formulation of intellectual property policies, to draft legal documentation and provide legal consultancy services

The Standardization Administration of China has a total of seven standard projects related to RFID before the establishment of the RFID Standards Working Group under the Ministry of Information Technology.

### 3. Major Progress of the RFID Standards Working Group

In order to promote the development of RFID technology in China and to meet the demands of local industries, projects should be carried out based on the preliminary RFID standard research and related standards' formulation. On June 2006, the RFID Standards Working Group of the Ministry of Information Technology applied a total of 19 projects related to RFID key technology standard, in which 9 submissions on national standards and 10 submissions on industry standard. (See tables below).

1. The 9 national standard proposals submitted to Standardization Administration of China in June 2006:

Sequence Number	Name	Type
1	Information technology / RFID Tag General Specification	National Standard
2	Information technology / RFID Reader General Specification	National Standard
3	Information technology / AIDC technology / RFID device performance test methods	National Standard
4	Information technology / Conformance testing methods for RFID device / Part 3: 13.56MHz Air Interface Communication Testing Method	National Standard
5	Information technology / Conformance testing methods for RFID device / Part 4: 2.45GH Air Interface Communication Testing Method	National Standard
6	Information technology / Conformance testing methods for RFID device / Part 7: 433MHz air interface communication testing method	National Standard
7	Information technology / RFID technology / Data protocol: Data encoding rules and logical storage function	National Standard
8	Information technology / RFID technology / Data protocol: application interface	National Standard
9	Information technology / Common RFID Terminology	National Standard



2. The 10 industry standard proposals submitted to the Ministry of Information Industry in June 2006:

Sequence Number	Name	Type
1	Wireless technical indicators and testing methods for electronic label read-write devices	Industry Standard
2	Internet based electronic label information searching and service discovery	Industry Standard
3	Product and Service Digital Identification Format Specification for Information Processing	Industry Standard
4	RFID based code domain specification for products and services	Industry Standard
5	Decimal System Network (IPv9) Based Electronic Label Information Positioning, Searching and Service Discovery and Application	Industry Standard
6	Electronic Label Security Technical Specification	Industry Standard
7	General Technical Standards of Electronic Labels for Garment Manufacturing Industry	Industry Standard
8	General technical requirements of electronic label for dangerous chemical product gas cylinder identification: Part1 : Gas Cylinder Identification Code	Industry Standard
9	General technical requirements of electronic label for dangerous chemical product gas cylinder identification: Part2 : Application Technical Specification	Industry Standard
10	General technical requirements of electronic label for dangerous chemical product gas cylinder identification: Part3 : Special Requirements of Readers	Industry Standard

3. The 9 standard proposals submitted by standard group related to air protocol in 2007:

Sequence Number	Applicants	Proposal Titles
1	HiSilicon Technologies Co., Ltd.	Optimization of An Anti-collision Algorithm without Timeslot and Stop for HF RFID
2	HiSilicon Technologies Co., Ltd.	Optimization of An Anti-collision Algorithm with Timeslot and Timeframe for HF RFID
3	HiSilicon Technologies Co., Ltd.	Anti-Collision Algorithm Optimization for ISO18000-6 Type B
4	Peking University	A RFID Tag Anti-collision Algorithm Based on Self-Adaptive Multi-Branch Trees for ISO18000-6 Type B
5	ZTE Corporation	Proposal of Ultra High Frequency Data Rate
6	ZTE Corporation	Proposal of reverse frame synchronization codes
7	ZTE Corporation	A RFID Tag Anti-Collision Algorithm Based on Pre-splitting Binary Tree
8	ZTE Corporation	A Collaboration Model Based on Multi-counting
9	ZTE Corporation	Optimization of A RFID Tag Anti-Collision Algorithm Based on Binary Trees





4. On April 2007, the Ministry of Information Industry released "The Announcement of Regulation on RFID Technology Application in 800/900 MHz Frequency Band" (Letter [2007] No. 205). According to the development situation of radio frequency classifications in China and the correlation with international related standard, the substantial use of frequency rate mentioned above is fixed at 840-845MHz and 920-925MHz. On July 30, 2007, the golden card project coordination and leading office collaborated with the Bureau of Radio Management of the Ministry of Information Industry to call the announcement at a meeting known as "Regulation on RFID Technology Application in 800/900 MHz Frequency Band (Trial)" and declared the applicable situations of the industry.

#### **4. The Multi-Function Card Application Alliance of the National Golden Card Project would like to set up the Standards Working Group**

In order to promote multi-function card applications of the Golden Card Project and to implement and circulate the "single card, multi-purpose" cards, the Multi-Function Card Application Alliance of the National Golden Card Project has convened a meeting in Beijing on December 13. According to Madam Zhang Qi, Director of the Office of National Golden Card Project Coordination Leading Group, the Multi-Function Card Application Alliance of the National Golden Card Project (hereinafter referred to as "the Alliance") was set up by enterprise units committing to the development and application of Smart Card and RFID on equal and voluntary basis, which is also a cross-departmental, regional, national and non-profitable organization. The Alliance aims to "renovate, collaborate, serve and achieve a win-win situation" and accepts business guidance from relevant governmental divisions. It was jointly initiated by China UnionPay, China Mobile, China Unicom, China Telecom, China NetCom, China Electronics Corporation, China Electronics Technology Group Corporation, Potevio

Corporation, Datang Group and other upstream and downstream backbone enterprise units for the smart cards and RFID industry in Mainland China.

At the first meeting of the Alliance on April 2008, Mr. Pan Li-hua, the General-Secretary of the Alliance, emphasized that standardization is the focus of work for the Alliance. According to the Alliance Constitution which states that it "takes enterprises as the main body, aggregates technical strength from experts, innovates and develops standards for the smart card of the Golden Card Project that tie with the China market, develops RFID enabled mobile smart card conforming to electronic payment standard, introduces standards related to RFID terminal and 3C digitalization based on multifunctional cards, promotes the technology conformance with the national or international standards and maximizes resources to benefit the society." During research and development, RFID enabled mobile smart card conforming to electronic payment standard continues to be the priority. Special attention should be uniquely tuned to the application needs. It is also hope that all operations merchants, China Union Pay and governmental departments and ministries to actively participate works of standardization.

In the mean time, policies related to intellectual property rights must be examined and implemented as soon as possible. For this, the Alliance will soon set up a research committee on intellectual property policy (the intellectually property group) to enforce polices on intellectual property, establish a patent pool of the Alliance, adopt and share the patents harmoniously and submit discussions and voting of the Alliance.

On September 22, 2008, the "Working meeting of the Multi-Function Card Application Alliance of the National Golden Card Project" was held in Beijing, with the establishment of "Multi-Function Card Application Alliance of the National Golden Card Project." as the major topic of discussion. This was unanimously agreed by the attendants of the meeting and that a proposal on standardization of mobile phone payment is scheduled to be submitted on October 15, 2008.

Remark: Original text contributed by RFID China Alliance. If any discrepancy exists between the Chinese and English versions, the Chinese version shall prevail.





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

### 1. Industries & Areas with RFID Applications

With the rapid development of the golden card project and the applications of IC cards, RFID technology has obtained practical applications. For example, the Ministry of Public Security uses RFID technology in the production of electronic ID card (for citizens of the second generation) using contactless IC cards – one of the earliest and most successful examples of the application of RFID technology in the China's Golden Card Project. In addition, China has achieved the preliminary success with RFID pilot applications or adoption of RFID technology in areas such as: railways, the "All-in-one Card" for public transport in the city, highway automatic payment tolls, automatic customs, electronic cards for temporary city residences and special staff management, counterfeiting of important items, examinations of special equipment, certification authentication and information security management, electronic identification for animals and plants, security supervision of food/pharmacy supply chain, track and trace of single children (new born) and pets, military resources and containers, real time tracking and tracing of letters and parcels, management of staff, matches and ticketing of the Special Olympic Games (the Olympics, World Expo), small amount of payments via mobile phones and modern logistics management.

### 2. RFID Pilot Applications in China's Golden Card Project

RFID pilot applications have been kick-started in conditional departments and areas, including:

- (1) To build a new socialized farming village where agricultural products are industrialized and ensure food safety and personal hygiene

RFID technology applications facilitate the quality checking of livestock raising, slaughter and food processing industry supply chain. It has also established a technology base for the track and trace of origin and physical flow of livestock products in addition to storage of information and recall of products.

- (2) To promote harmonized social infrastructure through industrial production process and safety production management

Along the use of RFID technology in public security, production management and control, the safety production for coal mine came first and thanks to the real time positioning capability which ensured safety of coal miners. There are now pilot sites at Gui Zhou, Xian Xi, Liao Ning and Inner Mongolia and have achieved great progress.

- (3) Supply Chain Management and Modern Logistics

We have chosen large scale chain supermarkets, post offices, railways, electronic customs points and ocean freight to carry out pilot applications, they included: warehouse management, logistics and distribution, container transportation and postal business to achieve track and trace of physical goods and information sharing. China RFID China Alliance is now collaborating with Nanjing to build a RFID application research and demonstration base and is maintaining a friendly relationship with the HKSAR.

- (4) Counterfeiting of Important Items and Security Management

For example, the use RFID technology in the security management and track and trace in dangerous goods like industrial chemical products, coal gas and natural gas steel cylinders and firework to effectively prevent accidents. More application examples like counterfeit management for expensive items, positioning and visibility management of military resources and logistics, etc.



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

### (5) Computerized Travel Industry and Modern Service Industry

With the development of 3C, 3G and broad band, wireless and mobile communication, new businesses and applications are popping in the market. No matter it is computerized animations and graphics, or certification authentication and e-business and backend applications for computers, mobile phones and other digital media such as electronic money and i-banking, electronic government administration and electronic business, digitalized TV, mobile game consoles, IPTV and visual products have undergone great transformation. Intelligent IC cards and RFID applications have become the most basic “pass” between the society and citizens – This is the hottest technology and a product of the modern information service industry and has gained wide applications.

### 3. Conditions of the Golden Card RFID Pilots

On December 24, 2007, the Office of National Golden Card Project Coordination Leading Group released the Notice of “Measures (Tentative) for the National Golden Card Project RFID Application Pilots” (Golden Card Office [2007] No. 23) and has clearly stated the conditions of the pilots:

- (1) The pilots and plans must comply with the “11th 5-Year Plan” of the department, industry and district
- (2) The pilots must be closely supervised by departmental, organization and unit heads. Must cover substantial areas with greater market demands and higher economic and social benefits
- (3) A better foundation with sufficient fund for pilots departments, industries or district information infrastructure, information resources and technology application and adoption
- (4) The pilots should get support from the department, industry and supervised department of the area with implementation plan, progress plan and policy

- (5) The pilots should come with forecast on beneficiary, including strengthen market monitoring, enhanced service ability, improved productivity, reduced labor and technology costs and development drive for related industry

### 4. Principles to follow in RFID Pilots

In the published article “Combining Independent Innovation and Open and Compatibility, Starting a New Phase for RFID Industry and Application Development”, by the Office of National Golden Card Project Coordination Leading Group has clearly stated the principles of RFID pilots:

- (1) The pilots should be practical and comply with the autonomous mode of development in China. It aims to break-through the autonomous and innovative level, and to form industry alliance, to build industry and pilot applications base, to innovate application model, implement pilot project and to establish development and social benefits
- (2) Encourage original, group and digestive innovations and build core RFID technology, standard and industry system through independent innovation
- (3) With reference to overseas’ traditional applications and benefits, the golden card project should pay close attention to the RFID pilots related to the public interests under co-ordination plan followed by promotion of wide use of applications
- (4) Standardization comes first, and then gain greater control over development of core technological products. Extra attention should go to IPR work and to the development of the industry persistently and healthily
- (5) With the support from the government to promote standardization of RFID technology, develop core technology products, encourage industry alliance, use of infrastructure of the alliance and promote applications of RFID in China
- (6) Adopts an open policy to enhance international cooperation and to follow the autonomous and open road for RFID development compatibly with the characteristics of China





# 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

#### (A) IT 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

#### (B) IT Software

This sector includes following:

- Company that develops software applications/ package, e.g. Microsoft, Oracle, IBM

#### (C) IT Consulting/Services

System Integrator  
 Business/IT Consulting  
 Application Service (ASP, SaaS)  
 Platform Service (e.g. DTTN)  
 Other Service (e.g. hosting, managed service)

#### (D) Both (Software and Hardware)

This section includes companies that fulfill requirements of hardware and software sectors.

(E) 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  
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, HSPDA)
- 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)

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)?



# APPENDIX A

## DISCUSSION GUIDE – TECHNOLOGY

- 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.

- (1) From a solution provider's view, what are the problems or pain point of IT adoption faced by your target customer?

- Business Operation

This section is to find out the following facts:

Currently, what business process adopts the least IT technology, such as RFID, software application?

Currently, what business process heavily relies on IT technology?

What business process should adopt IT, 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?

i. Barcode/RFID

ii. Wireless Technology, e.g. Wi-Fi, GPRS, EDGE, UMTS

iii. Web service, SaaS

iv. Positioning Technology, e.g. RTLS, GPS

v. Data Interchange Technology: EDI/XML

vi. Others





# APPENDIX A

## DISCUSSION GUIDE – TECHNOLOGY

What solutions have been widely adopted in the customer's business process?

i. WMS

ii. SCM

iii.ERP

iv.MRP

v. Others (Please specify)

- Human Resource Perspective
- Finance Perspective (e.g. budget, ROI)
- External Factors (e.g. Government Regulation, Competition)
- Others (please specify)

(2) 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)

(3) 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:

1.failure rate

2.reasons to fail

i. solution appropriateness

ii. bad project management

iii. reluctance of customer/user

iv. 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 IT 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 IT 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 IT 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?
- Are you interested in participating in R&D projects if such R&D project can resolve your business problems and improve your company competitiveness?
- If government is willing to support 90% over the total cost of such R&D project, are you willing to invest together with other companies within the industry the remaining amount and share the benefits generated from project deliverables? Can you think about the possible themes/topics for such joint R&D project?
- If government is willing to support 50% over the total cost of such R&D project, are you interested to invest the remaining amount and own the IP rights of the project deliverables?
- Do you think the function and long-term goal of the LSCM R&D Centre contributes to strengthening Hong Kong'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

随着经济全球化的迅速发展和国际竞争的日趋激烈，技术标准已经成为企业参与国际竞争的重要手段。如果说一个专利影响的仅仅是一个企业，那么一个技术标准则会影响整个产业，甚至会影响一个国家的竞争力。RFID技术的应用和推广，将成为世界经济贸易发展和经济全球化的一个重要推动力量。

#### (一) 中国RFID标准工作回顾

中国在RFID技术与应用的标准化研究工作上已有一定基础，目前已经从多个方面开展了相关标准的研究制定工作。制定了《集成电路卡模块技术规范》、《建设事业IC卡应用技术》等应用标准，并且得到了广泛应用；在频率规划方面，已经做了大量的试验；在技术标准方面，依据ISO/IEC15693系列标准已经基本完成国家标准的起草工作，参照ISO/IEC 18000系列标准制定国家标准的工作已列入国家标准制订计划。此外，中国RFID标准体系框架的研究工作也已基本完成。

2003年底，国家标准委批准成立了“国家电子标签标准工作组”，后因种种原因在2004年又予以撤销。2004年RFID应用被列入国家金卡工程重点工作，为加强标准工作，2005年10月信息产业部批准成立了“电子标签标准工作组”（见信科函〔2005〕52号文）。

#### (二) 信息产业部RFID标准工作组情况

2005年12月2日在京召开了信息产业部电子标签标准工作组成立大会暨第一次工作会议。该工作组组长由部电子信息产品管理司司长张琪兼任。工作组的任务是联合社会各方面力量，开展电子标签标准体系的研究，并以企业为主体进行标准的预先研究和制修订工作。截止到2007年12月31日，RFID标准工作组共有91家成员单位。其中：全权成员84家，观察成员7家。标准工作组采取开放、透明和协商一致的方式开展工作，工作组下设秘书处及7个专题组，分别是：总体组、标签与读写器组、频率与通信组、数据格式组、应用组、信息安全组、知识产权组。

##### 1. 各专业组任务：

- (1) 总体组：开展我国RFID标准体系研究。负责RFID标准制订的总体工作；负责推进各专业小组之间的协调、配合工作。
- (2) 标签与读写器组：负责制订标签与读写器物理特性、电特性及试验方法等标准。
- (3) 频率与通信组：负责提出我国RFID频率需求、制订RFID通信协议标准及相应的检测方法。
- (4) 数据格式组：负责制订基础标准、术语、产品编码、网络架构等标准。
- (5) 信息安全组：负责制订RFID相关的信息安全标准。
- (6) 应用组：负责制订RFID相关应用标准。
- (7) 知识产权组：制定RFID标准知识产权政策、起草知识产权法律文件，提供知识产权咨询服务。

在信息产业部RFID标准工作组成立之前国标委已立项的RFID相关标准计划项目共7项。





# APPENDIX B

## ORIGINAL TEXT OF "CHINA RFID STANDARDIZATION DEVELOPMENT"

### (三) RFID标准工作组主要工作进展

为促进我国RFID技术发展，结合我国国情和目前产业的实际需求，在前期RFID标准体系研究及相关标准制定的基础上，2006年6月信息产业部电子标签标准工作组申报了19项RFID关键技术标准项目计划，其中申请国标9项，行标10项（详见下表）。

#### 1. 2006年6月已上报国标委的国家标准计划9项：

序号	名称	类别
1	信息技术 射频识别标签通用规范	国标
2	信息技术 射频识别读写器通用规范	国标
3	信息技术 AIDC技术RFID设备性能试验方法	国标
4	信息技术 射频识别设备一致性测试方法 第3部分：13.56MHz空中接口通信测试方法	国标
5	信息技术 射频识别设备一致性测试方法 第4部分：2.45GHz空中接口通信测试方法	国标
6	信息技术 射频识别设备一致性测试方法 第7部分：433MHz空中接口通信测试方法	国标
7	信息技术 射频识别技术 数据协议：数据编码规则和逻辑存储功能	国标
8	信息技术 射频识别技术 数据协议：应用接口	国标
9	信息技术 射频识别通用术语	国标

#### 2. 2006年6月标准组已上报到国家信息产业部电子技术基础管理办公室行业标准计划10项：

序号	名称	类别
1	电子标签读写设备无线技术指标和测试方法	行标
2	基于互联网的电子标签信息查询与服务发现	行标
3	用于信息处理产品和服务数字标识格式规范	行标
4	基于射频技术的用于商品与服务的代码域名规范	行标
5	基于十进制网络的电子标签信息定位、查询与服务发现和应用	行标
6	电子标签安全技术规范	行标
7	服装制造业电子标签通用技术标准	行标
8	危险化学品气瓶标识用电子标签通用技术要求 第1部分：气瓶电子标识代码	行标
9	危险化学品气瓶标识用电子标签通用技术要求 第2部分：应用技术规范	行标
10	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	行标

#### 3. 2007年标准组已提交空中接口提案九项：

序号	提交单位	提案名称
1	海思半导体有限公司	HF RFID无时隙无终止防碰撞算法优化
2	海思半导体有限公司	HF RFID有时隙有期限防碰撞算法优化
3	海思半导体有限公司	基于ISO18000-6 Type B 的防碰撞算法优化
4	北京大学	基于ISO18000-6 Type B 的自适应多分枝树标签防碰撞算法
5	中兴通讯有限责任公司	超高频数据速率的建议
6	中兴通讯有限责任公司	关于反向帧同步码的提案
7	中兴通讯有限责任公司	预先分裂二叉树标签防碰撞算法
8	中兴通讯有限责任公司	关于多轮清点协同工作模式的提案
9	中兴通讯有限责任公司	关于二进制树标签防碰撞算法优化的提案



## APPENDIX B

### ORIGINAL TEXT OF “CHINA RFID STANDARDIZATION DEVELOPMENT”

4. 2007年4月信息产业部《关于发布800/900MHz频段射频识别(RFID)技术应用试行规定的通知》(信部无〔2007〕205号)正式发布。根据我国无线电频率划分和产业发展情况,并与国际相关标准衔接,制定上述频段RFID技术的具体使用频率为840-845MHz和920-925MHz。2007年7月30日,国家金卡工程协调领导小组办公室联合信息产业部无线电管理局在北京召开了“《800/900MHz频段射频识别(RFID)技术应用规定(试行)》宣贯会”,组织落实产业与应用的跟进。

#### (四) 国家金卡工程多功能卡应用联盟 成立标准工作组

为了推动金卡工程多功能卡的应用,促进“一卡多用”的实现和发行多功能卡,国家金卡工程多功能卡应用联盟于12月13日在北京召开了成立大会。国家金卡工程协调领导小组办公室主任张琪介绍,国家金卡工程多功能卡应用联盟(以下简称“联盟”)是由致力于金卡工程智能卡与RFID电子标签应用和产业发展的企事业单位在平等自愿的基础上成立的,是一个横跨众多部门和地区、全国性的、非赢利组织。联盟以“创新、合作、服务、共赢”为宗旨,接受相关政府部门的业务指导。联盟发起单位主要有中国银联、中国移动、中国联通、中国电信、中国网通、中国电子信息产业集团、中国电子科技集团、中国普天集团、大唐集团,以及国内智能卡和RFID产业链上下游骨干企事业单位。

在2008年4月联盟第一次工作会议上,秘书长潘利华强调,标准制定是今年联盟工作的重点。根据联盟章程“以企业为主体,组织专家技术力量,创新研制符合中国国情的金卡工程多功能智能卡标准、基于手机智能卡RFID技术的电子支付标准、基于多功能卡的RFID终端标准及数字化3C等相关标准,推动其成为国家标准或国际标准之一,以最大限度的实现资源共享和服务共享。”在标准的研制中,首先是基于手机智能卡RFID技术的电子支付标准。在标准研制时特别要充分注意应用的需求,同时也希望各运营商、银联及各部委积极参加标准的研制工作。

在制定各项标准的同时,要尽可能早地积极研究并制定知识产权的各项政策。为此,联盟将尽快组织知识产权政策研究小组(知识产权组),提出联盟的知识产权政策,组织建立联盟的专利池、协调专利的采纳和共享,及其它知识产权事务;并提交联盟讨论、通过。

2008年9月22日,在北京再次召开了“国家金卡工程多功能卡应用联盟工作会议”。本次会议主要讨论了成立“国家金卡工程多功能卡应用联盟”标准工作组的事宜,与会代表一致同意,定于2008年10月15日,向联盟秘书处提交关于手机支付标准的建议书。





## 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) 我国RFID应用的行业和领域

随著金卡工程建设和IC卡应用的蓬勃发展，RFID技术已经得到实际应用，如：在金卡工程行业性IC卡应用中，公安部采用RFID技术制造非接触式IC卡电子证照，即第二代居民身份证，这是RFID技术在中国金卡工程建设中最早启动的成功应用范例。此外，我国在铁路运输、城市公共交通“一卡通”、高速公路不停车收费、自动化通关、城市暂住证等各类电子证照与特殊人员管理、重要物品防伪、特种设备强检、CA认证与信息安全管理、动植物电子标识、食品/药品供应链安全监管、独生子女（新生儿）及宠物的跟踪管理、军用物资及集装箱、邮件、包裹的实时跟踪管理、特奥会（奥运会、世博会）的人员、赛事及票务管理，手机小额支付以及现代物流管理等领域都已先后启动了RFID应用或试点工作，并取得了初步成效。

##### (二) 国家金卡工程RFID试点项目情况

目前已在有条件的部门和地方启动了RFID应用试点工作，主要涉及以下领域：

1. 建设社会主义新农村，服务于“三农”，推进农业（农产品）产业化，为食品安全和人民健康提供保障  
应用RFID技术对肉牛和生猪等牲畜养殖、屠宰和食品加工产业链建立全程质量安全追溯体系，为实现农畜产品源头可追溯、流向可跟踪、信息可存储、产品可追回，奠定了技术基础。

2. 面向工业生产过程与安全生产管理，促进和谐社会建设

把RFID技术用于公共安全、生产管理与控制，首先用于煤矿安全生产对矿工的安全保护与实时定位。目前正在贵州、山西、辽宁、内蒙等有关矿区进行应用试点，并取得了可喜进展。

3. 供应链管理与现代物流

我们选择大型连锁超市、邮政、铁路、电子通关、远洋运输等行业进行试点，包括：仓储管理、物流配送、集装箱运输及邮政业务等，实现物品动态跟踪和信息共享，中国RFID产业联盟正在南京等地筹建RFID应用研发及示范基地，并与香港特区开展了友好合作。

4. 重要物品的防伪和安全管理

如：RFID用于工业危险化工品、煤气与天然气钢瓶、烟花爆竹等的安全管理与动态跟踪，有效防范事故风险；对贵重物品的防伪识别管理；军用物资、军事后勤的动态定位及可视化管理等。

5. 数字旅游产业与现代服务业

随著数字化3C产业，3G与宽带、无线、移动通信的发展，各种新业务、新应用层出不穷。无论是数字动漫与网游，还是CA认证与电子商务，以及基于计算机、手机和各种数字移动多媒体信息终端的应用，如：电子货币与网上银行，电子政务与电子商务，以及数字电视、手机游戏和IPTV及数字音视频产品都将发生巨大的变革，使智能IC卡与电子标签应用成为信息化社会最基本的人与社会交往的“通行证”，成为现代信息服务业最热门的技术和产品，并将得到最广泛的应用。



## APPENDIX C

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

#### (三) 金卡工程RFID试点条件

2007年12月24日，国家金卡工程协调领导小组办公室关于印发《国家金卡工程RFID应用试点（暂行）办法》的通知（金卡办〔2007〕23号）明确了金卡工程RFID试点条件的内容，如下：

1. 试点工作与计划要符合本部门、本行业或本地区的“十一五”发展规划；
2. 试点工作要有明确的主管部门、组织协调机构和实施单位，试点应用要有具体领域，该领域的市场需求较大、经济和社会效益较好；
3. 试点部门、行业或地区信息基础设施建设、信息资源开发利用、信息技术推广应用等方面有较好的基础，并有充足的资金保障；
4. 试点工作应有本部门、本行业或本地区主管部门的支持，有可操作的试点实施方案、工作进度计划以及政策措施支持；
5. 试点工作应有的示范效益预测，包括加强市场监管、增强服务能力、提高生产效率、降低人员与技术成本、带动配套产业发展方面的示范效应。

#### (四) RFID应用试点必须遵循的原则

国家金卡工程协调领导小组办公室在《自主创新与开放兼容相结合，努力开创RFID产业与应用发展新局面》一文中，明确了RFID应用试点必须遵循的原则，如下：

1. 从实际出发探讨符合国情的自主发展模式，力求在自主创新方面有所突破，组织产业联盟，建立产业与应用示范基地，创新应用模式，实施示范工程，形成集群发展和社会效益；
2. 鼓励原始创新、集成创新与消化吸收再创新，建立以自主技术为核心的RFID技术、标准和产业体系；
3. 讲求效益，在参考国外传统应用的基础上，重点抓好金卡工程涉及民生、普惠大众的RFID应用试点，在统筹规划下先试点后推广，积极而又稳妥地开展应用；
4. 坚持标准先行，抢占制高点，抓好核心技术产品研发，重视IPR工作，坚持产用结合，规范应用和促进产业健康发展；
5. 政府推动，支持RFID技术标准制定、核心技术产品研发、鼓励产业联盟、应用联盟建设，推动RFID技术在中国的应用；
6. 坚持开放，加强国际合作，走自主创新与开放兼容相结合的具有中国特色的RFID发展之路。



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