Preface

INTRODUCTION
Recent technology advance in service science and logistics informatics has brought major development boost to service and logistics service industries. It enables electronic means of logistics service operations, penetrating various value chains of logistics services. The service science view has been changing participants’ behavior in logistics service value chain, making the logistics service and operation more efficient, improving service experiences. With service innovation in the logistics industry continuously increasing, more and more efforts have been directed to value add e-means (i.e. IT means for innovation) for logistics services, With new e-means development, changes have been evident and reflected on the presentation and processes of logistics information, operations, and services.

SOCIAL COMMUNITY FOR INNOVATION
Today’s logistics industry also benefits from innovations in social community development. A logistics service community would emphasize on the value of knowledge exchange among locally dispersed community members. In such a community, logistics objects are identified, tracked, and augmented with digital information. However, traditional approaches for recognizing these objects typically rely on either complex pattern recognition techniques or bar code type technologies. Radio Frequency Identification (RFID) technology provides an unobtrusive method of sensing the presence of and identifying tagged logistics objects. With the development of wireless positioning technologies, the position of tagged objects could be determined as well. This interconnection among logistics objects with identification and positioning would supply better quality of information, thus enhance logistics information visibility.

When a wide variety of such sensors are becoming increasingly cheaper, their deployment is becoming increasingly wider. These novel technologies have promised better logistics information visibility for logistics participants. To benefit from enhanced information visibility, logistics information could be used and analyzed to help identify similar logistics service patterns for participants to use. Further, the unique identification provided by RFID tagging enables convenient means to make the service experience better.

With the proliferation of Service science, RFID and other sensing technology, logistics industry would start considering to use these innovative technologies as feasible and strategic business solutions to integrate logistics applications for business processes within the company and across with business partners, forming value chains and communities. In order for the logistics service community to be successful, there are mechanisms required that fit naturally with the way on how the logistics business is conducted. The logistics service community facilitates the packaging of related logistics information,
product and service offerings for logistics operations to meet different service needs. It can potentially promote high quality of logistics services and products for service provisioning. It provides a platform of resource visibility and traceability for logistics services implementations, publication, discovery, and consumption. The community is an ideal platform for service innovation to support sharing, access, and managing diverse logistics resources.

CUSTOMER FOCUSED SERVICE INNOVATION

Logistics service community has shown potentials in developing a better eco-system for service innovation in logistics industry. Many case studies have been preformed to reveal technical, business. However, more efforts are needed to drive innovation and adoption to enable a more customer friendly and focused logistics services.

There exists a major gap between the physical and electronic worlds. Thus, there demands technologies to collect data and establish connections between them. Although RFID is one of such promising technologies, there are still many issues.

In the value chain of logistics, diversified population will have various needs. Although RFID would be able to gather and present data for enabling insight generation, there still demands to help participants understand the technology and address their data privacy concerns.

Relevant information to an individual may vary widely under different contexts. Many activities on pervasive information systems focusing on context-aware delivery of application-specific information are only able to operate within narrow application domains and cannot be generalized to handle other heterogeneous types of information. Techniques are needed to extend locales to generalize to support more flexible grouping and broader applications for those location-based services.

Service experience may encounter breakdowns due to functional failures, missing feedback, and inconsistent interaction models. RFID’s promise of better information visibility and unique object identification would help establish better information feedback and experience reinforcement. However, technologies still need to help include capacities to enhance service systems to adapt the services to the user’s behavior.

SERVICE SCIENCE AND LOGISTICS INFORMATICS

The interdisciplinary field of service science and logistics informatics yet has a lot more to be discovered. Until now, in the market, it is lack of valuable hotspot observations and reports for the interdisciplinary field. Strong demand is there for latest materials disclosing innovative findings for applied research and development in this field between service science and logistics informatics. Those materials would become more valuable if they are experiences and lessons learned on the world biggest retailers, world busiest airports, and world most dynamic regions. World wide researchers, practitioners, and academicians are seeking to focus their attention into the service sector for insights to develop service science discipline. A number of selected yet important topics relevant to logistics and supply chain industries would be of good importance towards those needs.

This book, in which eighteen chapters are selected, is constructed into six sections. It includes enabling technologies, e.g. RFID and other advanced technologies, which have further aroused interests in people to look into innovative ways to reengineer traditional services in logistics and supply chain management. It also includes reports on innovation strategies and mechanisms. Further it includes service
innovations in logistics and supply chain management. It also addresses latest applied service science research and industry practices and reports industry experiences in the adoption of the developed and emerging theories and technologies to enhance competitiveness.

Section 1 has two chapters, dedicated for innovation strategies and mechanisms. Chapter 1 reports observations and findings on “Innovative Strategies for Logistics Process”. In this chapter, innovative strategies for logistics processes that can be used practically in business environment are mentioned. For each innovative strategy title, tools that can be used to innovate operations are presented. By innovating logistics processes, logistics providers can fulfill customer needs rapidly and increase their profit because of having competitive advantage. Chapter 2 reports observations and findings on “Research on the Innovation Mechanism and Model of Logistics Enterprise: a Chinese Perspective”. A real case is selected for Shenzhen China Overseas Logistics Co. LTD (COL) as the empirical objects to analyze its character of the technology and non-technology innovation, and summarize its inner and outer driving force on promoting the service innovation. Thereafter, the typical service innovative model based on innovative driving force has been discussed.

Section 2 has three chapters, dedicated for experiences in logistics and service innovation. Chapter 3 reports observations on “Managing Customer-Centric Information: The challenges of Information and Communication Technology (ICT) Deployment in Service Environments”. This chapter reviews the difficulties inherent in using ICTs to manage customer-related information, and identifies the particular challenges for customer-centric deployment of ICTs. It provides a model of different levels of customer centric information use in organizations which helps understand how companies can become more customer centric in their information use. It reviews implications for future research in this emerging area and concludes that the challenges of ICT deployment and use must be addressed with an uncompromising focus on customer value as the central principle of both ICT design and deployment, and of information management in service organizations. Chapter 4 reports observations on “Impact of Wireless Sensor Network Technology on Service Innovation in Supply Chain Management”. This chapter provides an overview about wireless sensor network technology (WSN), how this technology can be applied to modern industries and especially bring service innovation to supply chain management. An overview of the history and potential applications of WSN is provided for the necessary background. The architecture, topology, standards, and protocols of WSN are fundamentally important and thus introduced in details. In a general sense, the impact of information technologies on supply chain management and service innovation is then briefly discussed. After that, much emphasis is placed on the possibility, procedures, and critical challenges of implementing WSN in supply chain management. In the end, two case studies are provided to illustrate the application of WSN for service innovation in both cold chain management and healthcare settings. Chapter 5 reports observations on “Application and Design of Surface Acoustic Wave Based Radio Frequency Identification Tags”. It overviews a complementary technology to the integrated circuit based radio frequency identification (RFID) - surface acoustic wave (SAW) based RFID. The fundamental principle and applications of SAW RFID are presented. In order to guarantee the encoding capacity and reliable reading range, the design criteria in coding scheme, tag design and a time domain interrogated reader design are discussed in detail. As an example, a low-cost SAW RFID system applied in poultry farming management is introduced.

Section 3 has four chapters, dedicated for new technology and techniques on logistics informatics and information logistics. Chapter 6 reports observations on “Information Needs of Logistics Service Providers”. This chapter studies is on logistics service providers (LSPs) that are representatives of typical Finnish supply chains. The purpose of the chapter is to point out the current level of information sharing in supply chains focusing on the information needs of logistics companies, particularly from the LSP’s point of view. It revealed that there is a lack of logistics information in the supply chain. The
information distribution should be intensified when aiming at achieving a more efficient supply chain. Chapter 7 reports observations on “IT Audit for Information Logistics”. It is focused on how information logistics in business organization is supported by standards and best practices of auditing. CobiT, ITIL, ISO/IEC 27002, Val IT as well as the Sarbanes-Oxley Act and ITAF model are analyzed in the aspect of information logistics. Chapter 8 reports observations on “Information and Communication Technology in Logistics as a Comparative Advantage”. In a time, when the “economic crisis” is filling the news, it may seem hard to even think about improvements in terms of research and development, since “there are lacking funds even for the reproduction”. However, also the last economic “revolution” was “born” in a crisis. Therefore it is sensible to look at the current situation as an opportunity for the next economic revolution, bringing the economy a new cycle of development. This contribution is to lay the foundation for an advanced-research technological platform for logistics applications networks. Chapter 9 reports observations on “How to market OR/MS decision support”. The OR/MS decision support is investigated from a new viewpoint of service. Firstly, based on the fact what is provided by OR/MS decision support, it is shown that OR/MS decision support shares characteristics with service and hence can be considered as a kind of service. Next, OR/MS decision support is analyzed from the viewpoint of what are necessary for service of high quality. It turns out that there is surely a problem with communication gap between decision makers and decision supporters. It is effective to utilize “problem specification”, which is a decision-maker-friendly description of problems, as one approach to bridge the communication gap.

Section 4 has three chapters, dedicated for a well developed yet important topic, i.e., service sourcing and supplier management. Chapter 10 is on “A Multi-criteria Tool for Evaluating Performance of Service Suppliers - The Case of Met-Mex Peñoles Supply Chain”. The quality of service is certainly a complex topic that many companies, although interested in the subject, difficult to address. It is well known that the main reason is due to the intangibility of the service, perishable and heterogeneous. This problem could be helped through a user-friendly tool. It is important to define and detect both internal and external suppliers, as well as the cycles and stages of services in which the organization has a close interrelationship with them. In these stages, it is critical to assess the quality of services provided by suppliers. Chapter 11 is on “Analyzing Requirements and Approaches for Sourcing Software Based Services”. The sourcing requirements are identified for software based services (SBS) and associate the key characteristics of SBS (with the sourcing requirements introduced). Furthermore, the sourcing of SBS is investigated with the related works in the field of classical procurement, business process outsourcing, and information systems sourcing. Based on the analysis, it is concluded that the direct adoption of these approaches for SBS is not feasible and new approaches are required for sourcing SBS. Chapter 12 is on “Supplier Relationship Management in Health Care”. The structural transformation of modern societies (e.g. aging of population, mobility) as well as continuously increasing market dynamics (e.g. mergers, technological advancement) induce health care organizations to reduce their costs while enhancing service delivery at the same time. However, as the pressure to innovate will increase extensively in the next years, similar developments are becoming relevant for the health care supply chain, too. In this chapter the current findings are adapted on supplier relationship management (SRM) to the health care context. On the basis of a case study a future scenario is developed for drugs supply management and discusses potential performance and quality improvements.

Section 5 has three chapters, dedicated for experiences on service management in industries. Chapter 13 reports observations on “Cargo Service Dynamics and Service-Oriented Architecture in East Asian Airports”. Findings from this chapter show that while conducive economic conditions continue to play a critical role in stimulating demand for cargo service at the airports, the importance of physical architecture has also dramatically risen relative to human factors. Particularly, adequate provisions and utilizations
of physical facilities for landside operations appear to be a more significant driving force for demand of an airport’s cargo service compared to those of airside operations. Despite the strong emphasis on swift and reliable services, cost savings are found to have regained their importance in the recent years. Chapter 14 reports observations on “Lifecycle Management of SLAs for Service Enterprises”. Service level agreement (SLA) is becoming an increasingly sought-after topic in recent years, as complex logistics and service chains span across geographical boundaries in the lights of globalization and new technological developments. This chapter introduces the state of the art of the lifecycle management of SLA for service enterprises, which covers stages of terms optimization, contract drafting and compliance tracking. In particular, the deficiencies are identified in the area of term optimization and outline several R&D tracks that would lead to the development of industry-strength SLA optimization capabilities. An initial version of a SLA optimization toolset coded-named SLA-OASIS is reported, in the context of a telecom service, to illustrate such a concept. Chapter 15 reports observations on “Cyber Transportation Logistics: Architecting a Global Value-Chain for Services”. In today’s global economy, products and services are provided across international borders. The sourcing of these products and services becomes an integral part of international businesses. Information, communication and transportation technologies (ICTT) have made this job significantly more streamlined. However, there is an advantage that big companies, such as Wal-Mart, have over small and medium size ones. While the big companies have the ICTT resources to source globally at will, small and medium enterprises (SME) are much less prepared to do so, resulting in a large competitive disadvantage. By contrasting SMEs with their more successful “big brothers,” the salient ICTT features are highlighted in system architecture as a checklist for any assistance that might be rendered to SMEs and other entities in overcoming their competitive impediment. These findings are the result of numerous international workshops and conferences held in Hong Kong and in Arkansas in the headquarters of Wal-Mart.

Section 6 has four chapters, dedicated for industry service models, profession development and outlook. Chapter 16 is on “Perceived Risk Management: Applying the TEID Model to the Traveler Service Chain”. This chapter holds the potential to contribute to extending an understanding and management capacity of customer-perceived risks of knowledge-based services. It brings into play a new framework and new risk management process. It also helps with formalizing and making tangible customer added-value. Chapter 17 is on “Prediction Reliability of Container Terminal Simulation Models: a before and after Study”. In this chapter attention is focused on the container terminal optimization problem, given that today most international cargo is transported through seaports and on containerized vessels. In this context, in order to manage a container terminal it is sometimes necessary to develop a Decision Support System (DSS). This chapter investigated the prediction reliability of container terminal simulation models (DSS), through a before and after analysis, taking advantage of some significant investment made by the Salerno Container Terminal (Italy) between 2003 and 2008. Chapter 18 is on “New Profession Development: The Case for the Business Process Engineer”. This chapter argues that an obstacle to business process (re)engineering is the lack of a business process engineer role with an associated professional education, tools, and community. There is an urgent need for a professional business process engineer. In the chapter, it is discussed the skills required of this profession and a first course offered at a university on this subject is briefly described. Chapter 19 is on “Logistics Services in the 21st Century Supply Chain Integration and Service Architecture”. The dynamics of change and the path-dependent evolution of resources and capabilities are central concerns of contemporary strategic management. Companies tend to concentrate scarce resources into their core competences. Opportunity, speed, product choices and availability are intangibles that customer value, some times more than the price. This chapter presents general concepts behind the supply chain and logistics industry, as well as a proposal of the general components of the service and organizational arrangements for logistics service providers depending on the complexity of the requirements of the company that hires the service provider.
FURTHER YOUR READING

Interested in continuing your reading? Bear the following, which is summarized to differentiate with others, in mind while you are reading.

As a first of a kind, this book addresses latest applied service science research and industry practices on emerging enabling technologies including RFID, service innovations in logistics and supply chain management, and the transformations of a more efficient economy. It helps the development and advances of this new interdisciplinary field of service science and logistics informatics.

This book, built on an excellent portfolio of accepted chapters, including contributions from three major continents including Asia, Europe, North/South America, on world biggest retailers, world busiest airports, and world most dynamic regions, to introduce service innovation in modernizing logistics and supply chain management, strives to serve as a prestigious reference to disseminate the state of the art research, development, and advances of service innovation in logistics and supply chain management.

This book helps steer the attention of service innovation exploration in the right directions for logistics and supply chain management. It targets both business and IT professionals for practices and guidelines to service innovation in logistics and supply chain management.

This book is also resulted from a customer focused innovation approach. A story line of this book is set as follows to structure the book, forming a good index for different reading styles, to suite your need.

- Innovation strategies and mechanisms
- Logistics and service innovation
- Logistics informatics and information logistics
- Service sourcing and supplier management
- Service management in industries
- Industry service models, profession development, and outlook.