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IFLS
THE INTERNATIONAL FEDERATION OF LOGISTICS AND SCM SYSTEMS
The International Federation of Logistics and SCM Systems

The 17th International Congress
on Logistics and SCM Systems

ICLS 2023

August 09th(Wed)~12th(Sat) 2023

Place.
KCCI (Korea Chamber of Commerce & Industry)

Host.
KSCM The Korean Society of Supply Chain Management
KCCI Korea Chamber of Commerce and Industry

Co-host.
KLS Korea Logistics Society
LOGIST The Society of Logistics Science & Technology

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Welcome Message

Message from the Chairperson of the International Federation of Logistics and SCM Systems

On behalf of the IFLS, it is my great honor and pleasure to congratulate the 17th ICLS Conference. As the IFLS was established in March 2003, this year we celebrate the 20th Anniversary of IFLS. Special thanks go to the two co-founders of the IFLS, Professor Yutaka Karasawa and late professor Young Hae Lee. Though the IFLS was initially operated mainly by Asian countries such as Japan, South Korea, China, Taiwan, Singapore, Thailand, Vietnam, and Indonesia, IFLS has been expanding to the worldwide academic organization including USA, Australia, Poland, Switzerland, Egypt, and Netherlands as the board members.

Since 2003, IFLS has held annual ICLS Conference almost every year. During the COVID-19 period of 2020 and 2021, we had to hold an on-line conference, and like other academic communities, the number of participants and papers were decreased due to traffic barriers and social environment. But we are very glad to see that the ICLS Conference is again vitalized in 2022 held in Thailand; and this year we are happy to meet more people and have more papers presented.

We are very much grateful for the organizing committee of ICLS2023, the General Chair, Prof. Hyun-Soo Han and many other colleagues of South Korea for their devotion. We are also very excited to announce the following two year's venue during the conference.

I hope that all the participants will enjoy this conference by sharing academic achievements, as well as expanding our fellowship with other participants, and promote the knowledge in logistics and SCM systems to make the world a better place to live.

Tony Sukchul Rim Chairperson of IFLS / Emeritus Professor, Dept. of Industrial Eng., Ajou University, Suwon, South Korea

Welcome to the 17th ICLS conference colleagues.

On behalf of the Korean SCM and Logistics societies, we are pleased to have this wonderful conference meeting. First of all, we organizing committee thank the overseas participants despite the most competitive flight schedule turmoil. We unfortunately didn't expect this kind of international flight congestion, indeed, we expressed our best regards and regret to those distinguished scholars who couldn't join us face-to-face today, including Dr. Karasawa, Dr. Paul Hong, Dr. Tsai, Dr. Paulina Golinska, Dr. Bongju Jeong, and many other IFLS board members.

I would like to appreciate many Korean organizing committee professors for their heartfelt endeavors to program organization and activities. Professor Dong-Ho Lee, Byung Do Chung, Soondo Hong, and Youngchul Shin chaired the entire academic programs and session organizations. Professor Sangwha Song, arranged local industrial excursions to provide the participants with a better industry collaboration experience. Also, we convey our deep gratitude to Professor YongHui Oh for the website, Professor Gyu M. Lee, Byung Soo Kim, Minkyun Kim for general organization and events, and Dr. Seunghee Oh who carries out all the detailed administration works from the beginning.

Indeed, we SCM and logistics academic researchers, professors, and students convey great thanks to the various support organizations, industrial firms, and individuals. This conference could be possibly held here today with the co-hosting initiative by KCCI (Korea Chamber of Commerce and Industry), and generous support including financials has been made by POSCO FLOW, ASETEC, Samyoung Logistics, LGCNS, Samsung SDS, Mobyus & Value Chain, ATWORTH, NeoSystems, AutoStore, Chunil Cargo Transportation, CJ Logistics, and other anonymous ones.

From August 9th Wednesday up to 10th Friday, and partially on Saturday, let us share these intimate and knowledgeable sessions and events during this mid-summer season in Seoul, Korea. Thank you very much.

Hyun-Soo Han (General Conference Chair, President of the Korean Society of SCM)

Yong-Jang Kwon (President of The Society of Logistics Science and Technology, Korea)

Soon Hong Min (President of Korea Logistics Society)

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Program of the Conference

Program Chairs

Dong-Ho Lee(Hanyang University) **Byung Do Chung**(Yonsei University)
Youngchul Shin(Ajou University) **Soondo Hong**(Pusan National University)

Date	Time	Agenda
Aug. 09. Wed.	18:00~20:00	Welcome Reception
Aug. 10. Thurs.	09:00~10:30	Session Cluster A (Paper presentation and discussion)
	10:30~10:50	Coffee Break
	10:50~12:30	Opening Ceremony Keynote Speech I. Kooil O (Samsung SDS EVP) "Supply Chain Collaboration based on Logistics DT" Keynote speech II. Prof. Sungzoon Cho (Seoul National University) "Leveraging AI and Big Data for Logistics and SCM Systems"
	12:30~14:00	Lunch
	14:00~15:30	Session Cluster B (Paper Presentation and Discussion)
	15:30~15:50	Coffee Break
	15:50~17:20	Session Cluster C (Paper Presentation and Discussion)
	18:00~20:00	Banquet (Best Paper Award)
Aug. 11. Fri.	09:00~10:20	Session Cluster D (Paper Presentation and Discussion)
	10:20~10:40	Coffee Break
	10:40~12:00	Session Cluster E (Paper Presentation and Discussion)
	12:00~13:30	Lunch
	13:30~18:30	Industry Tour I. Samsung SDS Industry Tour II. CJ Logistics
Aug. 12. Sat.	09:00~12:00	SIG Meeting

Keynote speech I.

"Supply Chain Collaboration based on Logistics DT"

Kooil O(Samsung SDS EVP)

Kooil O is the Executive Vice President at Samsung SDS, a top information technology & logistics service company in Korea. He is currently in charge of the logistics division and is interested in the digital transformation of the logistics industry. Based on his experience in logistics and supply chain management, he has played a pivotal role in shaping the company's logistics division into a global powerhouse.

Keynote speech II.

"Leveraging AI and Big Data for Logistics and SCM Systems"

Prof. Sungzoon Cho(Seoul National University)

[Profile]
Professor, Industrial Engineering, Seoul National University
Director, Big Data AI Center, Seoul National University
Member, National Data Policy Committee,
Board member, National Information Society Agency
Ex President, Korea BI Data Mining Society
Ex Chair, Open Data Strategy Council
BS, MS Seoul National University, Industrial Engineering
MS University of Washington, Computer Science (Computer Vision)
Ph D University of Maryland, Computer Science (Machine Learning)

Industry Visit

Organizer

Professor Sangwha Song

SangHwa Song is professor at graduate school of logistics, Incheon National University, Korea. His expertise lies in optimization, data analytics and strategic framework for digital tranformation in logistics and supply chain management.

E-commerce fulfillment center of CJ logistics

Global operation center of Samsung SDS

welcome reception

Samwoojeong Pavilion
134-2 Seosomun, Jung-gu, Seoul,
02-752-8044

Banquet

Shilla Stay Mapo
83, Mapo-daero, Mapo-gu, Seoul,
02-6979-9107

Session Cluster A

Aug. 10. Thurs. 9:00~10:30

Chair **Gyu M. Lee,** Pusan National University — Room: Conference Hall A

Author	Title
Seunghwan Kim and Byung Do Chung	Integrated food delivery problem considering both single and multiple order deliveries
Hyungbin Park and Bongju Jeong	Two-echelon multi-depot vehicle routing problem with simultaneous pickup and delivery for urban logistics system
Phatchara Sriphrabu, Chettha Chamnanlor and Kanchana Sethanan	Mixed Integer Programming for truck routing and scheduling problem with time restrictions in the steel coil and sheet delivery
Thi Minh Anh Cao, Vincent F. Yu and Nguyen Ky Phuc Phan	Adaptive Large Neighborhood Search Algorithm for the Multi-Depot Two-Echelon Vehicle Routing Problem in Last Mile Distribution

Chair **Hop Nguyen,** International University –VNU HCMC — Room: Conference Hall B

Author	Title
Gwangjong Ko, Hyungjoo Cha and Taesu Cheong	Geometric Guided Search: A novel metaheuristic algorithm and its application on discrete optimization
Sungho Kang and Taesu Cheong	The emergency department staff scheduling problem
Nhat Do Hong and Hop Nguyen	MULTI-OBJECTIVE FLEXIBLE PROJECT SCHEDULING WITH MULTI-RESOURCE CONSTRAINTS UNDER UNCERTAINTY

Chair **Hung Nguyen,** RMIT University — Room: Seminar Room 3

Author	Title
Hung Nguyen	Supplier environmental innovation taxonomy: an empirical investigation in foods, metal and electronic manufacturing industries
Sung-Keun Jeon, So-Hyun Park, Taewon Lee, Hee Kyung Kim and Seung-Chul Kim	Investigating the Impact of ESG on Supply Chain Management Performance in Automotive Industry
Sunghee Lee and Wonhee Lee	The Effect of Green Bond on Supply Chain Performance
Young Won Park, Jai-Joon Hur and Paul Hong	Organizational Capability and Digital Transformation: Case Study of Korean Firms

Chair **Seongtae Kim,** Aalto University School of Business — Room: Seminar Room 4

Author	Title
Angela Yu Yen Chen and Yutaka Karasawa	Basic Design of a SCM That Would Sustain Operations in Case of Disasters
Deqi Fu, Hyun Soo Han, Minjeong Oh and Sungyong Choi	An Exploratory Study on Risk Factors in Cold Chain Supply Chain using Topic Modelling
Yasser El Ouarrak, Aziz Hmioui, Bouchra Rajouani and Lhoussaine Alla	The Impact of Supply Chain Risk Management on Supply Chain Performance
Toan Tran and Seongtae Kim	On the occurrence of supplier sustainability risk: Effects of supply base complexity, organizational learning and administrative proximity

Session Cluster B

Aug. 10. Thurs. 14:00~15:30

Chair **Aldy Gunawan,** Singapore Management University — Room: Conference Hall A

Author	Title
Aldy Gunawan, Dang Viet Anh Nguyen, Pham Kien Minh Nguyen and Pieter Vansteenwegen	GRASP based metaheuristic to solve the mixed fleet e-waste collection route planning problem
Pham Kien Minh Nguyen, Vincent F. Yu and Aldy Gunawan	Vehicle Routing Problem with Parcel Locker and Public Transportation: Goods delivery using Mass-Rapid-Transit system
Hyungjoo Cha and Taesu Cheong	A Mixed-Integer Linear Programming Model for Capacitated Routing Optimization of Two Waste Collection Vehicles with Waste Transfer Capability
Vincent F. Yu, Renan Maglasang and Samuel Alan Darmasaputra	Large Neighborhood Search-based Hyperheuristic with Learning for the Vehicle Routing Problem under the Bloodmobile System

Chair **Byung Soo Kim,** Incheon National University — Room: Conference Hall B

Author	Title
Hyeon-Il Kim and Dong-Ho Lee	Variable neighborhood search algorithms for flow shop scheduling with reworks under overlapped queue time limits: minimizing total tardiness
Willy Chandra Sugianto and Byung Soo Kim	Integrated scheduling of production in parallel additive manufacturing machines and delivery through multi-trip vehicle routing problem
Pengcheng Wang, Jongsuk Lee, Guo Sheng Lee, Seung Ki Moon and Manuel Lopez	Digital twin driven reconfigurable production line design and optimization in smart factory
Kanta Shimizu and Takashi Irohara	Visualization of the ability of each worker in the disassembly line and optimization of personnel assignment using it

Chair **Hyunwoo Lim,** Inha University — Room: Seminar Room 3

Author	Title
Hanseok Seo and Taesu Cheong	An ILP-based heuristic for Vehicle Routing Problem with last mile platforms and occasional drivers
Eunsang Lee and Bongju Jeong	Multi-objective optimization model with ε-constraint method for the building envelope retrofit considering embodied and operational carbon emissions
Peerawat Luesak, Peema Pornprasert, Ganokgarn Jirasirilerd, Worapot Sririrak, Rapeepan Pitakaso, Thanatkij Srichok, Somphop Chiaranai and Surasak Matitopanum	An Analytic Hierarchy Process-Based Decision Support Model for Finding and Rating Attractive Tourist Destinations for the Elderly in Ubonratchathani Province, Thailand
Ji Han Shin, Gwanyong Oh and Daejin Kim	Comparative analysis of driving patterns and carbon emissions of delivery trucks in high and mixed-population density cities: A case study of postal truck in Seoul and Gangneung, Korea

Chair **Tay Huay Ling,** Singapore University of Social Sciences — Room: Seminar Room 4

Author	Title
Guixiang Jin, Jongmin Lee, Hiroaki Matsukawa and Ilkyeong Moon	Choosing Appropriate Safety Stocks considering Supply Chain Disruption Risks
Huay Ling Tay, Hsy Chen, Nigel Leno Gasper and Hui Shan Loh	A Framework for Strategic Supplier Selection and Engagement for Humanitarian Organisations
Nuri Park, Sungjun Lee and Juneyoung Park	Before and After analysis of a Freight Logistics Risk According to the Revise of Truck Rest-break Periods
Tianyuan Xu and Bongju Jeong	Green logistics system risk and/or uncertainty assessment model considering urban consolidation center

Chair **Chang Seong Ko,** Kyungsung University — Room: Seminar Room 2

agenda
SCM academics and industry international collaboration and discussions

Session Cluster C

Aug. 10. Thurs. 15:50~17:20

Chair **Kanchana Sethanan,** Khon Kaen University — Room: Conference Hall A

Author	Title
Elifcan Dursun Ozguven, Mark Goh, Kia Meng Tan and Robert de Souza	Tactical Scheduling for Eldercare Transport: A Case Study
Punyawich Sessomboon, Kanchana Sethanan, Krisanarach Nitisiri and Sirorat Pattanapairoj	Multi-Depot Split Delivery and Pickup Vehicle Routing Problem with Various Route Types, Mixing between Pickup and Delivery Missions, Heterogeneous Fleet, and Common Carriers: A Case Study of Animal Feed Industry
Surasak Matitopanum, Ganokgarn Jirasirilerd, Worapot Sirirak, Rapeepan Pitakaso, Kiatisak Pranet, Surajet Khonjun, Somphop Chiaranai and Peerawat Luesak	Differential Evolution Algorithm for Improvement the Drinking Water Distribution Route A Case Study of Urban Areas of Chiang Rai
Ângela F. Brochado, Eugénio Rocha and Diogo Costa	A Modular IoT-based Architecture for Logistics Service Performance Assessment and Real-Time Scheduling towards a Synchromodal System

Chair **Sungyong Choi,** Hanyang University — Room: Conference Hall B

Author	Title
Tony Sukchul Rim	Inventory Management using Retro Simulation: a Case Study
Rosi Ana Rahmawati, Taehoon Lee and Soondo Hong	A heuristic for job sequencing in a single S/R crane warehouse system
Aldy Gunawan, Tasaporn Visawameteekul, Aidan Wong and Linh Chi Tran	The Analysis of Extended Producer Responsibility (EPR) for E-waste management policy drivers and challenges in Singapore

Chair **Feng Xiao,** Shaanxi Normal University — Room: Seminar Room 3

Author	Title
Junseok Park, Changseong Ko and Ilkyeong Moon	Pricing Strategies in an M/G/m/m Loss System: a Case Study of Incheon Airport Customer Services
Feng Xiao, Chun Kit Lau, Kin Keung Lai and Bhagwat Ram	Robust Overbooking for No-shows and Cancellations in Healthcare
Ruobing Liu and Hyunwoo Lim	Consumer segmentation and choice preferences on online grocery retailers and their fulfillment services
YoungWon Park, Paul Hong, Geon-Cheol Shin and Jai-Joon Hur	Digital Marketing Strategy in the Post Pandemic World: Case Study of Korean Cosmetics Firms

Chair **Youngchul Shin,** Ajou University — Room: Seminar Room 4

Author	Title
Rapeepan Pitakaso, Thanatkij Srichok, Surajet Khonjun, Sarayut Gonwirat, Chutchai Kaewta, Natthapong Nanthasamroeng and Chawis Boonmee	Photo Challenge Game Designing for Tourism Promotion of Secondary Cities
Amornrat Sansoen, Wirachchaya Chanpuypetch, Tuangyot Supeekit and Ganda Boonsothonsatit	Investigating the barriers and critical success factors for the application of quantum computing in logistics and supply chain management: A case study of Thailand
Na Young Ahn, Euisung Jung and Paul Hong	Dynamic Governance in a Heterogeneous Blockchain Ecosystem: Overcoming Design and Implementation Challenges
Ettishri B Rajput and Tejinder Singh Lakhwani	Cost implications of tokenization of tangible and intangible assets: A case of textile and apparel industry supply chain in India

• **Plenary Session(in Korean)**

Chair **Chang Seong Ko,** Kyungsung University — Room: Seminar Room 2

Presenter	agenda
POSCO FLOW Ki Hyung Kim(Leader, Domestic Steel Product Group)	A Case Study on the Shared Growth of Steel Logistics

Session Cluster D

Aug. 11. Fri. 9:00~10:20

Chair **Sy Hoang Do,** National Taiwan University of Science and Technology — Room: Seminar Room 2

Author	Title
Sy Hoang Do, Vincent F. Yu, Putu A. Y. Indrakarna and Yenchun Jim Wu	The Electric Share-a-Ride Problem
Kuninori Suzuki, Yoshihide Ikushima and Yoji Murayama	A Study on the Development of Integrated Palletization through the Use of Modal Shift Transport.
Masaaki Suzuki and Mari Ito	Development and Analysis of Maintenance Schedules for Nuclear Components Under Reliability Constraints Using Swarm Intelligence

Chair **Eugénio Rocha,** Universidade de Aveiro — Room: Conference Hall B

Author	Title
Junhyeok Lee, Youngchul Shin and Ilkyeong Moon	Perishable inventory management in the online-offline channel system considering proactive transshipment
Chanho Lee and Taesu Cheong	Regret-Based Adaptive Curriculum for Deep Reinforcement Learning in the Traveling Salesman Problem
Tae Min Kim and Byung Do Chung	Dynamic rescheduling approach based on multi-agent system and reinforcement learning
Eugénio Rocha, Ângela F. Brochado and Diogo Costa	Supply chain optimization of hightly customized and costly products by a mixed ML/DL and CP-SAT approach

Chair **Yoonjea Jeong,** Dong-A University — Room: Seminar Room 3

Author	Title
Boonyarit Borormrit and Thitipong Jamrus	Site Selection and Allocation for Flood Evacuation Shelters: A Priority-Based Location-Allocation Model with Whale Optimization Algorithm
Yoonjea Jeong, Youngchul Shin and Gwang Kim	Reliable Facility Location Problem with Foldable Containers
Daniel Rodrigues dos Santos, Aloisio Santos Nascimento Filho, Carlos César Ribeiro Santos, Jonata Souza dos Santos and Hugo Saba	Facility Location Techniques to Assist Companies in Decision-making for the Installation of Logistics Hub

Chair **Oh Kyoung Kwon,** Inha University — Room: Seminar Room 4

Author	Title
Angela Yu Yen Chen and Yutaka Karasawa	Current and Future Directions of Logistics Application System in Japan
Yuxin Zhang and Oh Kyoung Kwon	A new conceptualization of innovation for supply chain management: an ambidextrous perspective and a dynamic capabilities approach
Nattakorn Pinyanitikorn and Wirachchaya Chanpuypetch	Identifying the Factors Influencing the Adoption Intention of Online-Based Freight Forwarding Service
Carlos César Ribeiro Santos, Vitório Donato, Daniel da Silva Motta, Herman Augusto Lepikson, Leonardo Sanches de Carvalho, Ricardo de Oliveira Monteiro Russel and Jonata Souza dos Santos	Logistics Process Innovation: Applying the SCRL Model for Measuring the Innovation Maturity Level in the Industry Supply Chain

Session Cluster E

Aug. 11. Fri. 10:40~12:00

Chair **Young Dae Ko,** Sejong University — Room: Conference Hall B

Author	Title
Chan Hee Park, Hyeon Hwa Na and Young Dae Ko	Operation for maintaining of vehicle platoon in an unpredictable situation
Ju Hyeong Park, Dae Young Ryu and Young Dae Ko	Optimal operation of platoon coordination service through the motorway hub
Hoai An Le Thi and Kim Thinh Nguyen	Solving Drone routing problems with Uncertain weather using Stochastic Difference-of-Convex Functions Algorithms
Janyawant Sasoongnon, Yutaka Karasawa, Sarinya Sala-Ngam and Jun Toyotani	An Application of VBA for Solving Undergraduate Program Selection and Allocation Problems: A Case Study of Engineering Faculty, Mahasarakham University

Chair **Youngbum Hur,** Inha University — Room: Seminar Room 2

Author	Title
Yong-Hyuk Shin and Chulung Lee	Optimal Inventory Management Method for Dental Suppliers Using Ensemble Machine Learning and Inventory Policy
Lee Jeewoong and Lee Chulung	Two-stage NLP model for predicting IPC codes in logistics patent documents
Salma Albreiki, Mecit Can Emre Simsekler, Abroon Qazi and Ali Bouabid	Assessment of the Organizational Factors in Incident Management Practices in Healthcare: A Tree Augmented Naïve Bayes Model

Chair **Byung Do Chung,** Yonsei University — Room: Seminar Room 3

Author	Title
Jun Seop Lee, Byung Do Chung and Chang Seong Ko	Network Design Model with Stackelberg Game for Collaborative Delivery Service
Junsu Kim, Jihun Kang, Jong Hoo Lee and Hosang Jung	Strategic redesign of Korea Post's parcel transportation network using data analytics and optimization techniques
Seongmin Park, Hyeonseo Kim and Juneyoung Park	Evaluation of the Adequacy of Rest Facilities on Expressways Based on the Revised Trucking Transport Business Operation Act in Korea

Chair **Young Sik Cho,** Jackson State University — Room: Seminar Room 4

Author	Title
Young Sik Cho and Paul Hong	Machine Learning and Healthcare Operations in Post Pandemic World: Case of Applying Convolutional Neural Networks (CNN) Algorithms
Paul Hong and Young Sik Cho	A Supply Chain Approach to Macro-level Issues: Case of Korea's Low Birth Rate
Myeongcheol Choi and Paul Hong	Triumphs, Trials and Transitions of Huawei: Implications of Hegemonic Rivalry on Global Firms
Nattakorn Pinyanitikorn and Manisra Baramichai	Evaluating the Impact of Transportation Costs on the Logistics Costs of Developing A Luxury Hotel And Resort: A Case Study In Maldives

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2023

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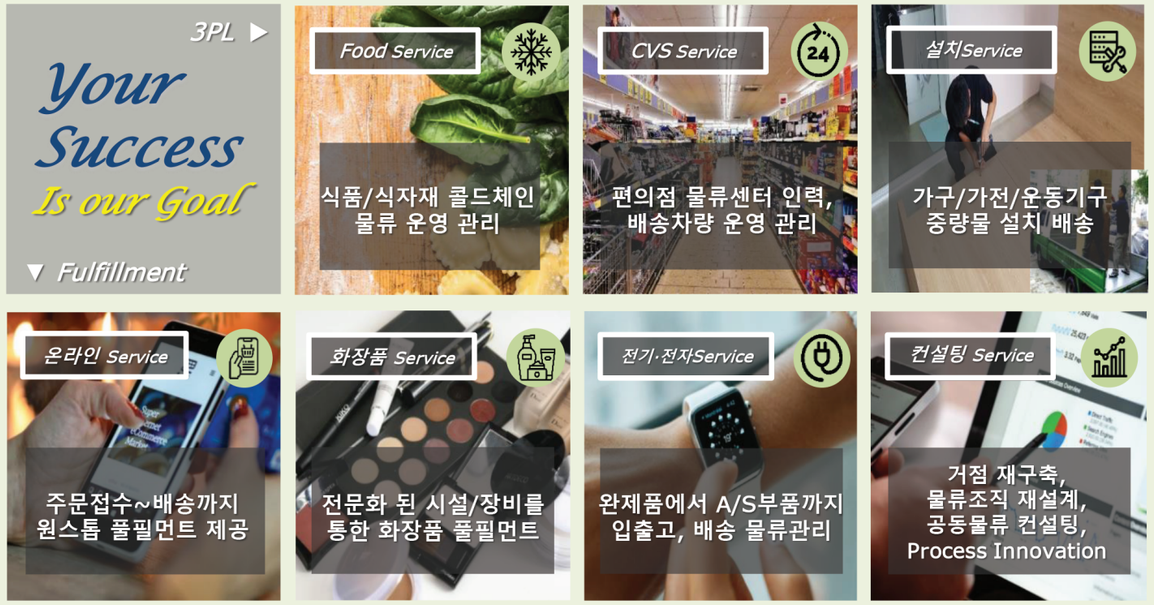

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인천광역시 서구 중봉대로 212 / Tel. 032-886-3003 / sylogis@sylogis.co.kr

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의류/유통분야 - 이랜드 천안/상해 물류센터, 다이소 남사허브센터 등
B2C 온라인 분야 - 쿠팡 부천/양산/고양센터, 롯데슈퍼 의왕/부산센터, 마켓컬리 김포센터, 롯데마트 중계/광교점, 이베이코리아 동탄센터, 올리브영 양지센터
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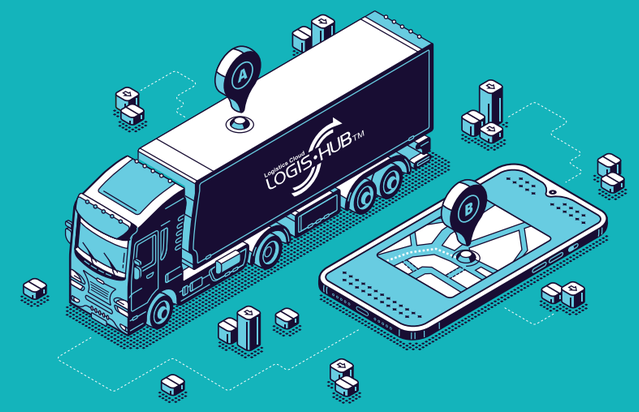

클라우드 물류 플랫폼의 선두주자, 로지스허브

하나의 온라인 플랫폼에서 원스톱 업무 처리
다양한 네트워크 형성과 빠른 시스템 확장
합리적인 초기 투자 비용
물류 서비스의 선택적 이용 가능

**네오시스템즈의 20여년 노하우로 완성된 로지스허브로
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풀필먼트 자동화는 오토스토어입니다.

값 싼 최적의 물류부지라는 건 없습니다.
지금 오토스토어에 연락하셔서 더 빠르고 더 정확한 풀필먼트를
보다 비용 효율적으로 실현하는 방법에 대해 저희 전문가들과 상의 하십시오.

고속 풀필먼트
작업자 당 1시간에 650회 피킹이 가능한 고속 풀필먼트 시스템입니다.

물류부지 절감
선반 대비 4배 물량을 저장하여 획기적인 물류부지 절감이 가능합니다.

어떤 규모도 가능
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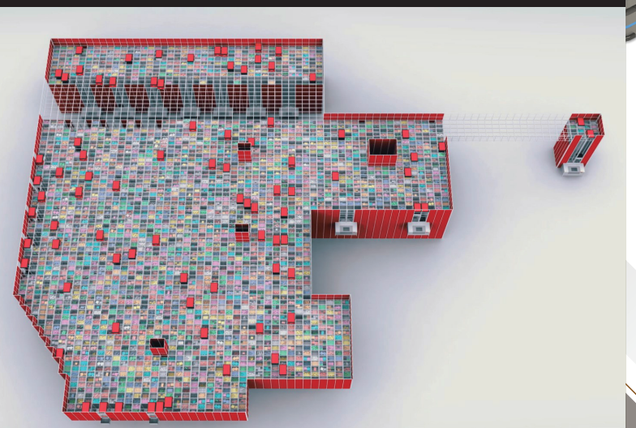

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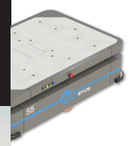

전 물류과정의 디지털화를 위한 전략적 파트너

- 자율주행 물류로봇 (AMR), 통합관제시스템 (ACS, FMS)
- 최적의 통합 물류 솔루션 제공 (WMS, OMS, TMS)
- 최적의 운영안을 위한 최고 전문가들의 컨설팅

물류로봇분야 세계최고 수준의 기술 적용

- 딥러닝 기반 운반물 인식 기술
- 독자기술 최적화 엔진을 이용한 군집주행, 교통관제 기술
- 다양한 물류기기, 설비, 솔루션의 통합을 통한 최대효과 달성

지속적이고 장기적인 고객가치 제공

- 안정적이고 신뢰성 있는 물류자동화 전략 설계 및 운영
- 제조, 유통 등 전 산업분야에 대한 자동화/로봇화 및 물류 솔루션 제공
- 글로벌 대응 역량 (고객 해외 사업장 구축 및 유지보수 대응)

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