The 7th International Symposium on Operations Management and Strategy 2017

JOMSA 第 9 回全国研究発表大会

【Conference Theme】
“Production and Operations Management in Asia Pacific Region —Leveraging IoT and Industry 4.0 —.”

June 9 – June 11, 2017, Tokyo Metropolitan University, Japan

【統一論題】
アジア・太平洋地域におけるオペレーションズ・マネジメント
ーIoT・Industry4.0 を競争にどう活かすか?ー
2017 年 6 月 9 日-11 日　首都大学東京

Dates： June 9 - June 11, 2017
Venue： Tokyo Metropolitan University, Minami-Osawa Campus
1-1 Minami-Osawa, Hachioji-shi, Tokyo, Japan
Registration： June 9 ：17:45-18:30 Building No.1 1st Floor Room 110
June 10： 9:00-16:00 Building No.1 1st Floor Room 110
June 11： 9:00-12:00 Building No.1 1st Floor Room 110
Access to the campus: https://www.tmu.ac.jp/english/university/access.html

開催日: 2017 年 6 月 9-11 日
会場: 首都大学東京大学 南大沢キャンパス 1 号館（受付 9:00～）
〒192-0397 東京都八王子市南大沢 1-1
受付: 6 月 9 日: 17:45～18:30 1 号館 110 教室
6 月 10 日: 9:00～16:00 1 号館 110 教室
6 月 11 日: 9:00～12:00 1 号館 110 教室

アクセス案内: https://www.tmu.ac.jp/university/campus_guide/access.html
http://www.tmu.ac.jp/english/university/campusmap.html

Japanese Operations Management and Strategy Association
オペレーションズ・マネジメント＆ストラテジー学会
Tokyo Metripolitan University
首都大学東京

Greetings

Welcome to the 7th International Symposium on Operations Management and Strategy 2017

Yasutaka Kainuma (Conference Organizer)
Tokyo Metropolitan University, Tokyo, Japan

Japanese Operations Management and Strategy Association (JOMSA) as the hosting organization is privileged to hold the 7th International Symposium on Operations Management and Strategy (ISOMS 2017) in Tokyo, Japan. The 9th JOMSA Annual Conference will be held jointly with ISOMS 2017.

The theme of this symposium is “Production and Operations Management in Asia Pacific Region —Leveraging IoT and Industry 4.0 —.”

Currently, IoT is the new emerging technology which will be used to connect all objects through the Internet for remote sensing and control. On the other hand, Industry 4.0 research is recognized as the emerging technology throughout the world. It is valuable to discuss the emerging technologies in the future in Asia-Pacific region countries. This symposium focuses on how to leveraging these emerging technologies in global competition. Another important goal of this symposium is to bring together researchers from academia and practitioners from different industries to share ideas, problems, and solutions.

We sincerely hope that many researchers, educators, and practitioners will assemble in this symposium to create new knowledge for the globalization of business. We look forward to exchanging inspiring ideas with you in Tokyo.

ご挨拶

JOMSA 第9回全国研究発表大会および総会の開催にあたって

大会実行委員長
首都大学東京 教授 開沼泰隆

オペレーションズ・マネジメント＆ストラテジー学会（JOMSA）の第 9 回全国研究発表大会および総会を首都大学東京南大沢キャンパスで開催することとなりました．まずこの場をお借りして，本学を会場校にお選びいただきましたことに感謝申し上げます。

本学会では昨年より、インダストリー4.0（Industrie 4.0）について議論を進めてきました。本年度も引き続きインダストリー4.0、IoT についての技術に焦点を当て、IoT で変革するモノづくりやオペレーションズ・マネジメントに与える影響についても考えていきたいと思っております。特に、このようなインダストリー4.0、IoT の技術がアジア・太平洋の地域の生産・オペレーションズ・マネジメントに与える影響は非常に大きいと考えられ、この影響を明らかにすることはグローバルに展開する企業に戦略面で有効な指針を与えるものになることは想像に難くありません。

JOMSA は今後、韓国、台湾などのアジア諸国やオーストラリア、ニュージーランドの学会と連携して研究交流を始めたところです。これ等の国々とアジア・太平洋のオペレーションズ・マネジメント技術の開発・発展に繋げたいと強く願っております。

ISOMS/JOMSA Program ①

ISOMS/JOMSA 2017 Time Table: Saturday, June 10, 2017

Time	Event		
9:30~9:45	**【開会式】** @1 号館 120 教室		
9:45~11:00	**【JOMSA 基調講演 (1)】** Speaker: 堀水 修 (株式会社日立製作所 IoT 推進本部 担当本部長) 「IoT で変革する社会とモノづくり」 @1 号館 120 教室		
11:00~11:15	**Break**		
Room	Room A (1-107)	Room B (1-104)	Room C (1-109)
11:15~12:45	JOMSA/ サステイナブル・オペレーション Chair: 富田純一 （東洋大学）	ISOMS / Invited Session Chair: Hirofumi Matsuo, Kobe University	
12:45~13:45	**Lunch Time Break**		
13:45~15:00	JOMSA/ クオリティー評価・創造 Chair: 海老根敦子 （駿河台大学）	ISOMS / Session 1 Miscellaneous Session	ISOMS / Session 2 Miscellaneous Session
15:00~15:15	**Break**		
15:15~16:15	**【ISOMS Plenary Lecture】** Speaker: Alfred Taudes (Professor for Business Administration and MIS WU – Vienna University of Economics and Business) “Operations Management 4.0” @Building No.1 Room 120		
16:15~16:30	**Break**		
16:30~17:45	**【JOMSA 特別セッション】** **製造業経営の要諦—ものづくり新論の体系化とその有効性(パート III)** **【JOMSA 特別セッション(1)】** 「トヨタ生産方式と SCM、内外への拡がり」 天坂格郎(青山学院大学，名誉教授) @1 号館 120 教室		
18:00~20:00	Banquet (Buffet style) @University Cafeteria		

ISOMS/JOMSA Program ②

ISOMS/JOMSA 2017 Time Table: Sunday, June 11, 2017

Time	Event		
9:30~10:45	【JOMSA 特別セッション(2)】 「ASEAN における自動車企業のサプライ・チェーン・マネジメント」 伊藤宗彦(神戸大学，教授) @1 号館 120 教室		
10:45~11:00	**Break**		
11:00~12:15	【JOMSA 基調講演(2)】 「サステイナブル・オペレーションズ・マネジメント」 開沼 泰隆(首都大学東京，教授) @1 号館 120 教室		
12:15~13:15	**Lunch Time Break**		
Room	Room A (1-107)	Room B (1-104)	RoomC (1-109)
13:15~14:30	JOMSA / Invited Session 「プラットフォーム戦略」 Chair: 佐藤亮 （横浜国立大学）	ISOMS / Session 3 Miscellaneous Session	ISOMS / Session 4 Miscellaneous Session
14:30~14:45	**Break**		
14:45~16:00	JOMSA/ SCM イノベーション Chair：Yacob Khojasteh （上智大学）	ISOMS / Session 5 Miscellaneous Session	ISOMS / Session 5 Miscellaneous Session
16:00~16:15	**Break**		
16:15~17:15	General meeting @Building No.1 Room110		

ISOMS/JOMSA Program ③

Sessions for Saturday, June 10

Room	Room A (1-107)		Room B (1-104)		Room C(1-109)	
11:15 ~ 12:45	JOMSAセッション1 サスティナブル・オペレーション	Chair: 富田純一 東洋大学	Invited Session	Chair: Hirofumi Matsuo, Kobe University		
		A-1 カニバリゼーションを考慮した製造・再製造制御システムに関する研究 東京理科大学 奥田彩子 東京理科大学 石垣綾 電気通信大学 山田哲男		B-1 Supply chain coordination in Japanese policy of department store from a newsvendor's perspective Shota Ohmura St. Andrew's University		
		A-2 クローズド・ループ・サプライ・チェーンにおけるリマニュファクチャリング製品の利益の評価 首都大学東京大学院 七澤 巧 首都大学東京 開沼 泰隆		B-2 Equilibrium structure of fixed-cost-reducing alliances when firm's market power in Asymmetric Hiroki Sano Ritsumeikan University		
		A-3 太陽光発電産業における国際競争力、アーキテクチャ、産業政策の相互作用分析 東洋大学 富田純一		B-3 Measuring supply chain resili ence and agility using the p erformance impact curves. M easuring supply chain resilie nce and agility using the per formance impact curves: The benchmark of NIKKEI 225-li sted Japanese industrial com panies Jorge Calvo GLOBIS University		
				B-4 Triadic coordination of supply chain for increasing the resilience and flexibility Hirofumi Matsuo Kobe University		
Lunch Time Break						
Room	Room A (1-107)		Room B (1-104)		Room C(1-109)	
13:45 ~ 15:00	JOMSAセッション2 クオリティ評価・創造	Chair: 海老根敦子 駿河台大学	ISOMS Session1	ChaIr: Osam Sato Tokyo Keizai University	ISOMS Session2	ChaIr: Yasutaka Kainuma TokyMetropolitan University
		A-4 複合完結サービスにおける品質評価と継続意志の関連モデルの検討 医薬分業を対象として 北海道薬科大学 櫻井秀彦		B-5 The Japanese Quality Revolution: A Generation Late E. James Flynn Indiana-Purdue University Tomoaki Shimada Kobe University James Ang Soo-Keng National University of Singapore Kimberly A. Bates Rotman University		C-1 Study on reverse logistics management of debris Fumiya Matsuura Tokyo Metropolitan University Yasutaka Kainuma Tokyo Metropolitan University
		A-5 Essential Elements of an Organizational Communication Model to Describe a Communication State for Quality-Creating Management Atsuko Ebine Surugadai University		B-6 Interfirm Collaboration for New Product Development Performance Osam Sato Tokyo Keizai University		c-2 Development of a disaster relief logistics model considering the satisfaction level of victims Kei Kokaji Tokyo Metropolitan University Yasutaka kainuma Tokyo Metropolitan University
				B-7 Comparative stakeholder analysis of Austrian and Singaporean healthcare systems Odkhishig Ganbold		C-3 Challenge of international development project procurement: a critical analysis from donor funded public sector project of Bangladesh

				National University of Singapore Xiuyan Ma National University of Singapore Nikolaus Haslinger University of Applied Science Upper Austria Melanie Hinterplattner University of Applied Science Upper Austria James Ang Soo Keng National University of Singapore Robert de Souza National University of Singapore		Kamrul Ahsan RMIT University

ISOMS/JOMSA Program ④

Sessions for Sunday, June 11

Room	Room A (1-107)		Room B (1-104)		Room C(1-109)	
13:15 ~ 14:30	インバイトセッション プラットフォーム戦略	Chair: 佐藤亮 横浜国立大学	ISOMS Session3	Chair: Michiya Morita Gakushuin university	ISOMS Session4	Chair: Yoshiki Matsui Yokohama National University
		A-6 プラットフォーム戦略を評価するゲーミング手法の提案 横浜国立大学 砂口洋毅		B-8 Supply Chain Expedience: Unraveling the Double Helix of Delivery Delays Barbara Flynn Indiana University Markham Frohlich Indiana University Amrou Awaysheh Indiana University		C-4 On the dynamics of closed loop supply chains with auto- and cross-correlated demand and return processes Takamichi Hosoda Aoyama Gakuin University Stephen M. Disney Cardiff University
		A-7 A cloud CRM strategy of salesforce.com from 2006-2014 -An analysis of complementary applications salesforce.com seized and reconfigured on a framework of Teece's dynamic capability- Akimasa Tanaka Graduate School of Yokohama National University Ryo Sato Yokohama National University		B-9 Strategic Behaviors under Industry 4.0 Michiya Morita Gakushuin University E. James Flynn Indiana-Purdue University		C-5 Analyzing the feasibility of implementing sustainability practices in supply chain through the interaction between the supplier and customer Ndala Yves Mulongo University of Johannesburg Pule Kholopane University of Johannesburg
		A-8 プラットフォームとしてのペイメントカード企業の競争戦略 横浜国立大学 佐藤亮 横浜国立大学 呂宗健		B-10 Toward Visualization of Performances of Companies' Operations under the Age of I.o.T./Industry 4.0 Yukari Shirota Gakushuin University Michiya Morita Gakushuin University		C-6 Relationship between quality management practices and sustainability performance in Vietnam Nguyen Hue Minh Yokohama National Univesity Phan Chi Anh Vietnam National University Yoshiki Matsui Yokohama National University
Break						
Room	Room A (1-107)		Room B (1-104)		Room C(1-109)	
14:45 ~ 16:00	JOMSAセッション3 SCMイノベーション	Chair: Yacob Khojasteh 上智大学	ISOMS Session5	ChaIr: Takao Terano Tokyo Institute of Technology	ISOMS Session6	ChaIr:Kakuro Amasaka Aoyama Gakuin University
		A-9 グローバル・サプライ・チェーンにおける生産拠点の選定に関する検討 首都大学東京大学院 上田隼大 文化学園大学 須山憲之 高千穂大学 降簱徹馬 上智大学 Yacob Khojasteh 首都大学東京 開沼 泰隆		B-11 How to Manage Product Development Teams' Coordinated Search Processes? Mohsen Jafari Songhori Tokyo Institute of Technology Mohammad Jalali MIT Takao Terano Tokyo Institute of Technology		C-7 Organizational Coordination in Process Industry Comparison Study on Steel and Beer Sungwoo Byun Kindai University Junichi Tomita Toyo University
		A-10 イノベーション実現のためのコンセンサス形成ウェブアプリケーション普及のための標準化戦略 立教大学 深見嘉明		B-12 Managing new product ideas on crowd-sourcing initiatives Mohsen Jafari Songhori Tokyo Institute of Technology Mohammad Jalali MIT Takao Terano Tokyo Institute of Technology		C-8 The National Innovation System in Vietnam in the Face of Industrial Revolution 4.0 Phan Dinh Manh Yokohama National University Yoshiki Matsui Yokohama National University
				B-13 Strategic Adaptation: Integrating Product Development Capability with		C-9 Studies on Automobile Exterior Design Model using Cusromer Science Principle

				Supply Chain Capability Michiya Morita Gakushuin University Jose A. D. Machuca University of Seville Jose L. P. Díez de los Rios University of Seville		Kakuro Amasaka Aoyama Gakuin University

JOMSA 基調講演 (JOMSA Plenary Lecture(1))

IoT で変革する社会とモノづくり
—つながるモノづくりに向けた日立の取り組み—
"Transformation of society and manufacturing with IoT —Activities in Hitachi toward Connected Manufacturing—"

堀水 修　Osamu Horimizu
（株式会社日立製作所 IoT 推進本部 担当本部長）
(General Manager, IoT Business Promotion Division, Hitachi, Ltd.)

要 旨:

1. IoT による新たなイノベーションをめざす動き
2. モノとモノがつながった時に、メリットが生まれる業務シナリオ
3. 現状課題とあるべき姿の定義および解決策の構築

講演概要:
IoT の導入においては、すべての課題を同時に解決しようとするのではなく、モノとモノがつながった時に、メリットが生まれる可能性がある業務シナリオをベースに、現状の課題とある姿を定義し、解決策を構築していくべきである。日立製作所の取組みをご紹介する。

略歴:

1988 年 4 月	(株)日立製作所入社 本社生産技術部配属
1992 年 9 月	カーネギーメロン大学 ロボティクスインスティテュート 客員研究員
2005 年 4 月	日立中国有限公司 モノづくり技術センタ センタ長
2013 年 10 月	(株)日立製作所 Smart Transformation 強化本部 サブプロジェクトリーダ
2014 年 4 月	(株)日立製作所 モノづくり戦略本部 担当本部長
2017 年 4 月	(株)日立製作所 IoT 推進本部 担当本部長

ISOMS Plenary Lecture

Title: Operations Management 4.0

Alfred Taudes

Professor for Business Administration and MIS
WU – Vienna University of Economics and Business

Abstract:

This talk will consider how the diffusion of Industrie 4.0 will affect Operations Management practices in manufacturing companies. We will start out with the origins and current status of Industrie 4.0 in German speaking countries. We will then present the technological innovations summarized under the slogan Industrie 4.0. by introducing the Industrie 4.0 pilot factory in Vienna, Seestadt. This “toy factory” employs the latest hard- and software technologies to produce 3D printers for teaching, research and training purposes. For this prototypical Industrie 4,.0 production system, we identify key issues for operations management in an environment characterized by sensing machines, products and storage/transportation equipment, robots, 3D printers, body attached sensors, shopfloor WLANs and In-Memory ERP systems. On this basis we then can assess operations management models and methods with regard to their relevance in Industrie 4.0 environments and discuss new challenges. Finally we will talk about the impact of our findings for education and research in Operations Management.

Biography:

Alfred Taudes is Professor at the Institute for Production Management, Department of Information Systems and Operations WU (Vienna University of Economics and Business). He has undertaken research in the interface of Operations and Supply Chain Management, Marketing Engineering and Knowledge Management. He has published more than 150 articles, among others in international top journals like Management Science, European Journal of Operational Research, International Journal of Production Economics, Marketing Science and MIS Quarterly. His current research interests are Managerial Aspects of Industrie 4.0 and Digital Business Models. Alfred Taudes holds a doctoral degree in Business Administration from WU Vienna, a Magister Degree in Management Information Systems from Vienna University and a PhD (Habilitation) from WU Vienna in both fields.

JOMSA 特別セッション (JOMSA Special Session)
製造業経営の要諦―ものづくり新論の体系化とその有効性（パートⅢ）

Keys to manufacturing management:
Building and validating new manufacturing theories (PartⅢ)

特別セッション（1）
天坂格郎（青山学院大学，名誉教授）
Kakuro Amasaka (Aoyama Gakuin University, Professor Emeritus)

特別セッション（2）
伊藤宗彦 (神戸大学，教授)
Munehiko Itoh (Kobe University, Professor)

要旨:

急速に変化する経営技術環境下で、日本製造業の命題は世界市場から淘汰されないよう、顧客価値を高める最新モデルの高信頼性商品を他社に先駆けて提供することであり、積極的にチャレンジしなければならない。昨今の日本先進企業の度重なる大規模なリコール問題にみるように、開発設計を中心した信頼性技術問題は、科学的品質経営の要諦をなすグローバル品質保証技術不足への警鐘である。

本セッションのねらいは、JOMSA 設立の基底にあるグローバルな視点での“製造業経営の要諦の体系化”の必要性を捉える。21 世紀のものづくりのフロントランナーとして貢献できるよう、日本発の「ものづくり新論」というべき統合的な理論構築にかかわる学術の確立への布石であり、学会諸兄らの議論の場となれば幸いである。

JOMSA2015(特別セッション,学習院大学)と JOMSA2016(特別セッション(パート II),神戸大学)の議論を踏まえ、今回の特別セッション(1)では、日本的生産を代表する“トヨタ生産方式と SCM、国内外企業への拡がり”に焦点をあてる。特別セッション(2)では、ASEAN、とりわけタイにおける自動車企業のサプライ・チェーン・マネジメントに関する調査報告を行う。

2 つのセッションから、ものづくりに関わる要素技術の学際的研究、グローバルな視点でのオペレーションに関わる産学の連携による研究・教育と実践に関連する情報交換を図る。

Abstract:

The environment surrounding management technology is rapidly changing. For the Japanese manufacturing industry to survive in the world market, it will be necessary to boldly take up the challenge to lead other companies in offering the latest highly-reliable products that boost customer value. As evidenced by the repeated widespread recalls that have plagued leading Japanese companies in recent years, problems with reliability (particularly in the design and development process) are red flags pointing to a lack of the global quality assurance technologies that are the key to scientific quality management.

The purpose of this session is to underline the importance of systematizing the keys to manufacturing management from a global perspective—one of the underlying principles behind the establishment of JOMSA—as we lay the academic and scientific foundations for the building of a comprehensive theory that can rightly be called “a new theory of monozukuri” originating from Japan. It is hoped that this will allow us to make a solid contribution to the industry as a frontrunner in twenty-first century manufacturing.

Based on the discussion at the JOMSA2015 (Special Session, Gakushuin University) and JOMSA2016 (Special Session (Part II), Kobe University), the focus of Special Session (1) is “Toyota: Production system, SCM, and progress to inside and outside.” And the special session (2) focuses on “the supply chain management of automobile industry in ASEAN,” especially in Thailand.

In adopting these themes, we are aiming to exchange knowledge and information on research, education, and practical application by having industry and academia work together in conducting academic research on essential monozukuri-related technologies, as well as enabling operation from the global perspective.

JOMSA 特別セッション(1) (JOMSA Special Session(1))

演題:「トヨタ生産方式と SCM、内外への拡がり」
Title: Toyota: Production system, SCM, and progress way

司会:天坂格郎 (青山学院大学, 名誉教授)
Chair:Kakuro AMASAKA (Aoyama Gakuin University, Professor Emeritus and Doctor)

発表1:「TPS 展開の鍵 (1):生産管理と SCM」
Presentation 1:The key to TPS progress (1): Production control and SCM
三浦 紀文 (中央発條(株) 執行役員)
Norifumi MIURA (Chuo Spring Co., LTD., Officer)
発表2:「TPS 展開の鍵 (2):生産技術とものづくり」
Presentation 2:The key to TPS progress (2): Production engineering and Manufacturing
山田 敏博 (豊田エンジニアリング(株) 代表取締役社長)
Toshihiro YAMADA (Toyoda Engineering Corp., President)
発表3:「TPS 展開の鍵 (3):製造技法と高生産性」
Presentation 3: The key to TPS progress (3): Manufacture technique and high productivity
村田 明彦 (村田生産保全㈱ 代表)
Akihiko MURATA (Murata Production & Maintenance Ltd., President)

天坂格郎
Kakuro
AMASAKA

三浦 紀文
Norifumi
MIURA

山田 敏博
Toshihiro
YAMADA

村田 明彦
Akihiko
MURATA

要旨:
JOMSA2015 の特別セッション(1)では、超短期開発・生産プロセスの変革に視座し「開発・生産の高品質保証—製品設計と未然防止」に焦点をあてた。JOMSA2016 の特別セッション(パート 2)では、“最適化開発・製品設計”と“最適化生産・サービス”に視座し、ものづくりのドライビングフォースである「開発・製品設計・生産・サービスの高品質保証」に焦点をあてた。
本セッション(パート 3)では、日本的生産を代表する“トヨタの生産方式と SCM、内外への拡がり”に焦点をあてる。中でも、TPS 展開の要である生産企画、生産管理、生産技術、製造、トヨタサプライシステム、他企業への TPS 展開の実際に言及する。発表 1 では、グローバルの観点で、(1)国内外の車両工場でどの車種をどれだけ生産するか、同様に(2)ユニット・部品の内製/外注の生産場所をどのように配置するか、さらに(3)中央発條を例とするトヨタサプライシステムの展開について紹介する。発表2では、ものづくり戦略の要諦である、“多品種少量生産”を具現化する、“生産技術開発—、高稼働率を確保する機械加工ラインの工程設計”にフォーカスする。発表3では、近年、ものづくり戦略として展開している, “Total Quality Assurance Network Model”をベースとした、”製造技法—顧客の求める要求品質と結び付いたトレーサビリティシステムの構築“について紹介する。併せて、内外企業へのTPSの拡がりについて例示する。

Abstract:
The focus of Special Session (1) (JOMSA2015) was optimized product design and optimized production management technologies, namely, assuring high quality in development and production through product

design and fault prevention. Furthermore, the focus of Special Session (1) (JOMSA2016) was the driving force behind “monozukuri” manufacturing practices; namely, assuring high quality in development / product design, production and service.

In this Special Session (1) (JOMSA2017), we focus on “Toyota: production system, SCM, and progress way” representing Japanese production. In doing so, we will work the production planning, production control, production engineering, manufacturing, and Toyota supply system which are the important points of TPS deployment, and actual development of TPS to other companies. as follows; In report 1, we do appearance about (1) What kind of vehicles should be performed by what production scales?, and (2) the ratio of insourcing/outsourcing of units and parts, and those production places in internal and external automotive factories from a viewpoint of a global strategy. Furthermore, we introduce the state of deployment of the Toyota supply system in Chuo Spring、Co. Ltd. In report 2, we do a focus to process design of the machining line which realize "High rate of operation" in order to embody "multi-product low-volume manufacturing" as a key of manufacturing strategy, In report 3, we illustrate an establishment of traceability system for realizing *customers' demand quality* based on a Total Quality Assurance Networking Model named Toyota's QA network developed as a global manufacturing strategy. Connecting, we illustrate the spreading TPS to inside-and-outside companies.

JOMSA 特別セッション(2) (JOMSA Special Session(2))

演題:「ASEAN における自動車企業のサプライ・チェーン・マネジメント」
Title: The supply chain management of automobile industry in ASEAN

司会: 伊藤宗彦 (神戸大学, 教授)
Chair: Munehiko Itoh (Kobe University, Professor)
発表1:「ASEAN における日系自動車メーカーの現地化プロセス」
Presentation 1: Localization process of Japanese car manufacturers in ASEAN
下野由貴(名古屋市立大学, 准教授)
Shimono Yoshitaka (Nagoya City University, Associate Professor)
発表2:「タイにおける自動車産業のサプライ・チェーンの研究」
Presentation 2: Study on Thailand's Automobile Industry Supply Chain
伊藤宗彦 (神戸大学, 教授)
Munehiko Itoh (Kobe University, Professor)
発表3:「日系自動車部品メーカーのサプライヤー・デベロップメント」
Presentation 3: The Supplier Development of Japanese Automobile Parts Makers
加藤厚海(広島大学,教授)
Atsumi Kato (Hiroshima University, Professor)

伊藤 宗彦
Munehiko
Itoh

下野 由貴
Shimono
Yoshitaka

加藤 厚海
Atsumi
Kato

要旨:
タイの自動車産業のサプライ・チェーンについて分析した。自動車産業のサプライ・チェーンは極めてすそ野が広く、多くのサプライヤーが存在する。日本の自動車メーカーは、系列化によって、リーン生産方式という。極めて高品質な自動車を短期間で生産する仕組みを構築してきたが、タイは東南アジア地域では、日本企業の自動車生産の拠点として、50 年以上も生産を拡大しつづけている。日本のほぼすべての自動車メーカーはタイへの進出を果たしており、その自動車生産のサプライ・チェーンはどのようなものなのかを分析した。日本国内の自動車産業では、サプライヤーと自動車メーカーが長期的な取引関係を維持する、系列と言われる垂直的ネットワークが一般的である。このような取引関係では、多数のサプライヤーが、系列の自動車メーカーの要求に合わせて、設備や技術の蓄積を行う。自動車メーカーも、サプライヤーを独自のスペックの自動車を生産するための補完的技術や生産設備を有するサプライ・チェーンの一員としてとらえて分析した。

Abstract:
Analysis was done for supply chain for automobile industry in Thailand. Supply chain for automobile industry is extremely diverse and many suppliers exist. Japanese automobile makers' production is called lean manufacturing method due to keiretsu. In Japan, production method was built along producing high quality automobile in short period but in Thai and other Southeast Asian areas using Japanese companies as base of operation, production have been expanding for over 50 years. Almost all of Japanese automobile makers have already expanded into Thailand and analysis was done on what these supply chains are like. Automobile industry inside Japan, long lasting vertical relationship between supplier and automobile maker called keiretsu is the norm. In these kinds of transaction relationship, multiple suppliers will accumulate equipment and technology depending on what the automobile maker demands. Also automobile maker thought of suppliers as part of supply chain that has technology and equipment to produce original cars of the automobile maker.

JOMSA 基調講演 (JOMSA Plenary Lecture(2))

サステイナブル・オペレーションズ・マネジメント

Sustainable Operations Management

開沼泰隆 Yasutaka Kainuma
首都大学東京 システムデザイン学部 教授
Professor of Tokyo Metropolitan University

Abstract:

In this talk, we focus on the cannibalization effect of the remanufacturing systems in sustainable operations management. The hybrid manufacturing/remanufacturing system is modeled and analyzed including refurbishing processes with different condition levels. At the manufacturing stage, new products are manufactured from raw materials. At remanufacturing stage, returned products are inspected and classified according to their condition. Returned products are classified into the three condition levels of remanufacturing, refurbishing, and disposal. New products, remanufactured products, and refurbished products are defined below:

・New products

Products that use all new raw materials and parts.

・Remanufactured products

Products collected from the market that are disassembled, inspected, washed, repaired, reassembled, and remanufactured.

・Refurbished products

Products that are have been briefly used (i.e. display models) or have minor damage, that are cleaned, re-paired, and sold as new. Refurbishing can be thought of as small scale remanufacturing.

Refurbished products are sold as new, but remanufactured products are different from new and refurbished products. The results indicate that the hybrid manufacturing/remanufacturing model, which includes refurbishing, is more profitable. The model was evaluated using a number of different parameters. Furthermore, the demand model used in this study clearly shows the relationship between the demand for newly manufactured products and the demand for remanufactured products.

Biography:

Yasutaka Kainuma is currently a Professor of Operations Management in Department of System Design, Tokyo Metropolitan University, Japan. He received a Ph.D. from School of Science and Technology, Meiji University. He is the Vice President of Japan Industrial Management Association and the Board of Trustees Member of the International Foundation for Production Research – Asia Pacific Region.

His research interests include supply chain management, closed-loop supply chain, sustainable operations and remanufacturing. He won the best paper award of the 21th ICPR (2011), the outstanding paper award of the 14th APIEMS Conference (2013) and 17th APIEMS Conference (2016) .

ISOMS Invited Sessions

■Saturday, June 10, 2017, 11:15 - 12:45 (Room B)
ISOMS Invited Sessions 1："Supply Chain Strategy and Performance"
Chair：Hirofumi Matsuo, Kobe University

In this session, we present the on-going research on supply chain coordination and the performance measurements of supply chain management with respect to its resilience against disastrous events. Three presentations apply game theoretic frameworks to analyze the coordination schemes and alliance structures between supply chain entities in various settings. One addresses the return policies in retailing. The second is on the alliance structure in technology management in the semiconductor industry. The third is on the vertical and horizontal alliance of the automotive semiconductor supply chain. The other paper addresses the performance measurements of Japanese large manufacturers in response to catastrophic events such as financial crisis and supply chain disruption. The alliance structure and the supply chain performance are discussed in various settings in this session.

B-1 Supply chain coordination in Japanese return policy of department store from a newsvendor's perspective

Shota Ohmura, (St. Andrew's University)

In Japan, book, apparel, electrical appliance and grocery industries adopt return policies, which is more widespread than in other countries. Nevertheless return policies are considered a strange business practice and a factor that reduce effectiveness of supply chain management (SCM) in Japan (Ejiri, 1979; Kato, 2000). If return policies are not good policies, why the industries adopt the policies? Do the policies reduce SCM effectiveness? In this presentation, we consider Japanese return policy of department store. We model the relationships between department store and apparel maker in Japan as newsvendor models. In the model, there are three cases in which the Stackelberg leader and the decision variables are different. We analyze the return policies in the settings, comparing with the no-return policy commonly observed in practice as the standard way to govern transaction in supply chain. Then we show the conditions which may explain why the return policies are widespread in Japan.

B-2 Equilibrium structure of fixed-cost-reducing alliances when firm's market power is asymmetric

Hiroki Sano (Ritsumeikan University)

With the context of alliance formation in new technology development between semiconductor manufacturers, we study how competing firms' cooperative decisions in a new market entry opportunity can be stabilized from a game-theoretic perspective. We discuss the equilibrium alliance structure when firms can be asymmetric in their relative market power while the individual investment cost is symmetric for a subset of firms. In a three-firm case, we show that, under certain conditions, the firm with the second highest market power can choose not to enter a new market while the other two firms cooperatively enter. We also address how the cost of coordination for alliance formation can affect the equilibrium alliance structure.

B-3 Measuring supply chain resilience and agility using the performance impact curves: The benchmark of NIKKEI 225-listed Japanese industrial companies

Jorge Calvo (Deputy Dean, Faculty Professor of Operations Strategy and Industry 4.0, , GLOBIS University School of Management)

We present a quantitative analysis based on financial ratios linked to supply chain resilience and agility to rank 115 Nikkei 225-listed Japanese industrial companies by measuring the impact of the global financial crisis resulting from the collapse of Lehman Brothers in 2008 and the earthquake disaster in Japan in 2011. We take as a validation reference the performance impact curves proposed by Asbjørnslett and Rausand (1997) and Sheffi (2007). The methodology allowed us to select the key metrics related to the dynamics of the impact of the crisis on a company's performance. We identified a pattern based on five variables associated with the following transitional points: 1) before the start of the crisis, 2) at the start of the crisis, 3) at the lowest point and the start of recovery, 4) at the turning point after recovery, and 5) after inflection, yielding the value and time for each variable. We disaggregated the basic components of Sheffi's disruption profile: falling period (Tc), impact

on performance (Rc), recovery point (C), recovery period (Tr) and post-recovery performance (Rr). The statistical analysis allows us to propose an initial approximation to an evaluation model to determine the resilience and agility of a company before the impact of a systematic crisis.

B-4 Triadic coordination of supply chain for increasing the resilience and flexibility

Hirofumi Matsuo (Kobe University)

In this presentation, we consider triadic coordination of the semiconductor supply chain consisting of a set-maker, an Integrated Device Manufacturer (IDM) and a foundry. To mitigate the supply chain disruption risk and increase its flexibility in response to demand uncertainties, the set-maker often imposes the IDM to secure the second source and to make a wholesale price contract with the foundry with □-contract provision for 0<□<1. In the □-contract, the IDM must allocate the □ fraction of the demand to the foundry. With the □-contract, the IDM provides the foundry of an incentive to invest in capacity ex ante, and thus can exercise the horizontal coordination to realize dual sourcing. In the literature, such □-contract is studied within the context of horizontal coordination. In this presentation, we first show that if certain conditions on the cost structure of the IDM and foundry are satisfied, then the wholesale price contract can lead to the capacity configuration that is optimal for the centralized dyadic system of the IDM and foundry under the □-contract provision. Then, we show that, if such conditions do not hold, then the set-maker can exercise a vertical coordination scheme of capacity reservation contract with the IDM to achieve the same optimality. In this way, the set-maker proactively shares the capacity investment risk associated with disruptive events. The contribution of this research is to develop such a triadic coordination scheme, and show that the supply chain coordination can be used to mitigate disruption risk, which should be contrasted with its usual purpose of eliminating the negative effect of double marginalization.

JOMSA インバイトセッション

■2015年6月11日(日)13:15～14:30 (Room A)
JOMSA インバイトセッション:「プラットフォーム戦略」
座長:佐藤亮 (横浜国立大学)

A-6 プラットフォーム戦略を評価するゲーミング手法の提案

横浜国立大学 砂口洋毅

ビジネスの現場において、事業責任者が経営戦略を解釈し、オペレーション戦略として実行することには困難さがつきまとう。それは、事業責任者が自らの事業経験に沿って経営戦略を解釈し、事業を取り巻く環境を考慮しながら、具体的に実行可能なレベルに落とし込んでいく作業を必要とするためである。本研究は、プラットフォーム戦略を設計する手法として、ゲーミング手法を提案する。インテルの MPU 事業を対象として、クスマノらによる4つのレバーを内生変数とするモデルを設計してゲーミングをおこない、事業責任者であるプレーヤーの行動を分析することによって、プラットフォーム戦略の評価をおこなった。この一連の手法について報告するものである。

A-7 A cloud CRM strategy of salesforce.com from 2006-2014 -An analysis of complementary applications salesforce.com seized and reconfigured on a framework of Teece's dynamic capability-

Akimasa Tanaka, Graduate School of Yokohama National University
Ryo Sato, Yokohama National University

A cloud CRM became an important IT system for not only small and medium sized companies but also large companies. However, an achievement of cloud CRM providers is different. This study analyzes a cloud CRM strategy of salesforce.com that has been top market share in the industry. To analyze their strategy, this study used a framework of Teece's dynamic capability which had proposed to seize and reconfigure external complementary assets as a platform strategy. And this study augmented the constructs of complementary assets in Teece's framework, then applied those augmented constructs to complementary applications salesforce.com had seized and reconfigured. In a result, we found salesforce.com (1) had seized complementary applications which had not been used for CRM applications, (2) had reconfigured the complementary applications to complement CRM applications.

A-8 プラットフォームとしてのペイメントカード企業の競争戦略

横浜国立大学 佐藤亮
横浜国立大学 呂宗健

プラットフォーム企業間の競争の分析において、サイド間ネットワーク効果によるポジティブフィードバックの重要性が指摘されることが多い。それに起因する一人勝ちにむけた熾烈な競争が予想される。ペイメントカードはクレジットカードとデビットカードの総称であるが、プラットフォーム・ビジネスの典型である。したがって、それらの企業間の競争ではサイド間ネットワーク効果を中心に据え、さらに、補完事業者などから構成されるエコシステムに注意が向けられることが多い。銀聯は VISA や MasterCard と同様の、非営利型の銀行連合のタイプのペイメントカードである。後発である銀聯がどのようにして成長を遂げたのか、何かポイントであったのかを分析する。プラットフォーム戦略論の枠組みよりも、もっと古くから知られた競争戦略論の参入障壁が有効であったことを明らかにする。

The 7th International Symposium on Operations Management and Strategy 2017

Abstracts

■Saturday, June 10, 2017, 13:45 – 15:00 (Room B)
ISOMS Sessions 1："Miscellaneous Session"
Chair：Osam Sato, Tokyo Keizai University

B-5 The Japanese Quality Revolution: A Generation Late

E. James Flynn, Indiana-Purdue University
Tomoaki Shimada ,Kobe University
James Ang Soo-Keng, National University of Singapore
Kimberly A. Bates, Rotman University

By 1980 Japanese manufacturers lead the world quality and cost breakthroughs. Manufacturers in other countries struggled trying to catch up with Japanese manufacturers. Recent surveys that indicate Japanese managers think Japanese plants no longer have an advantage in manufacturing quality. |||Reasons for the relative weakness of Japanese manufacturers center around the inability of Japanese firms to protect their innovations as will be analyzed. Most quality innovations developed by Japanese manufacturers were easily transferable because they could not be protected by firms as propriety knowledge through copyrights and patents. When a practice is described as outstanding, it is spread by trade publications, consultants promoting best practices and the firms themselves requiring their use by suppliers and making professional presentations. Theoretical explanations of how these characteristics promote the easy spread of practice innovations will be discussed.

B-6 Interfirm Collaboration for New Product Development Performance

Osam Sato, Tokyo Keizai University

According to past researches, interfirm collaboration, that is cooperation and contribution from external suppliers and customers, is important for success of new product development (NPD), both for product and project itself (Zajac and Olsen, 1993; Mohr and Spekman, 1994; Dyer, 1997; Hardy, Phillips, and Lawrence, 2003; Faems, Van Looy, and Debackere, 2005; Gulati and Nickerson, 2008, Schleimer and Faems, 2016). Interfirm collaboration provides synergistic combinations of complementarity resources, knowledge and skills into the NPD projects, and improves quality and value of the new product (NP). Although both are important, relative importance of them may be different depending on aspects of NP and NPD project because both include some different aspects. For example, customer's collaboration is important to improve customer's perception of the product. Supplier's collaboration is important to reduce unit price of the product. Menguc et al. (2014) studies supplier and customer involvement in design phase. However, so far as author knows, there has been no study that focus on the comparison of relative contribution from suppliers and customers in each aspect for new product development. |||We conducted an experimental empirical study about the subject with data that we had in hand collected for past international research project. We computed a series of structural equation models (SEM), and compared significance of coefficients for effect from supplier and customer involvement to NP and NPD project performance. According to the results, suppliers are more important than customers for some aspects, but vice versa for other aspects. Some aspects show almost same level of effect from both sides. Some results are understandable such as above, but others are not so apparent. The result provides a cue and additional information for study about important contributions both from suppliers and customers for success of each aspect of NPD.

B-7 Comparative stakeholder analysis of Austrian and Singaporean healthcare systems

Odkhishig Ganbold, National University of Singapore
Xiuyan Ma, National University of Singapore
Nikolaus Haslinger, University of Applied Science Upper Austria
Melanie Hinterplattner, University of Applied Science Upper Austria
James Ang Soo Keng, National University of Singapore
Robert de Souza, National University of Singapore

Singaporean has one of the leading and most successful healthcare system in the world. In contrast, the Austrian healthcare system has enormous improvement potentials in terms of cost-efficiency and effectiveness. Moreover, there is limited knowledge on the factors that affect and the mechanisms that define

a successful healthcare system and its performance. This study aims to identify best-in-class processes and to determine optimization potentials for both Austrian and Singaporean healthcare systems via comparative stakeholder analysis by conducting an interview survey with healthcare professionals and stakeholders from Singaporean and Austrian healthcare institutions.

■Sunday, June 11, 2017, 13:15 – 14:30 (Room B)
ISOMS Sessions 3："Miscellaneous Session"
Chair：Michiya Morita, Gakushuin University

B-8 Supply Chain Expedience: Unraveling the Double Helix of Delivery Delays

Barbara Flynn, Indiana University
Markham Frohlich, Indiana University
Amrou Awaysheh, Indiana University

This study uses two sets of big data two investigate the causes of delivery delays in supply chains that rely on large trucks to transport loads of cargo. We postulate that, metaphorically speaking, supply chain delivery delays result from the inextricably intertwined double helix of motor carrier errors and driver errors. Agency theory provides a foundation for understanding the relationship between a shipping company, a motor carrier and a truck driver, in both the tendering and transit phases of cargo transportation in a supply chain. However, agency theory's moral hazard construct is insufficient for fully explaining delays in this context. We integrate the literature on organizational expedience with agency theory to develop an explanation for actions by an agent that knowingly breaks rules in order to support both its own interests and the principal's goals, further speculating that the principal may turn a blind eye to such actions, since both the agent and the principal benefit from them. For example, there are benefits to both a truck driver and the motor carrier when the truck driver breaks the speed limit to deliver a load more quickly. The cognitive science literature is then used to develop an understanding of motor carrier errors and truck driver errors, to develop hypotheses based on expedience as a way of compensating for motor carrier and truck driver errors. Logit analysis and survival analysis, using a Cox proportional hazards model and ROC curve, are used to analyze a unique big data set of over 200,000 recent supply chain deliveries (almost 17 million data points) at a Fortune 500 company, which we linked to data about motor carrier behavior and truck driver behavior in a U.S. Department of Transportation (DOT) database. The results are relevant to shipping companies that rely on large trucks to transport their cargo, motor carriers providing transportation services and academics seeking to understand the nuances of agency relationships in supply chains and interested in incorporating big data into their research.

B-9 Strategic Behaviors under Industry 4.0

Michiya Morita, Gakushuin University
E. James Flynn, Indiana-Purdue University

It has been considered as difficult for companies to implement them successfully. There are many reasons or factors for it. Uncertainty or uncontrollability is one of the most significant barriers. It attaches to market values, functioning of processes, competition, political and institutional environments etc. In this study, we advocate the environment of strategic behaviors differs under Industry 4.0 from those in the past. We propose new requirements and possibilities of the strategic behavior of companies and argue how POM knowledge contributes to the strategic behavior under the concept of Industry 4.0.

B-10 Toward Visualization of Performances of Companies' Operations under the Age of I.o.T. /Industry 4.0

Yukari Shirota, Gakushuin University
Michiya Morita, Gakushuin University

Under the age of I.o.T. or Industry 4.0, digitalization significantly influences on management of companies. This new digitalization is differentiated from the digitalization based on needs of local activities such as manufacturing and marketing that used to characterize the past digitalization. The effectiveness of this new digitalization critically determines companies' performances. In this study, we propose a framework for the new

digitalization consisting of four visualization facets which meet different specific managerial needs. The four facets respond to the managerial needs of checking of status quo of current processes, diagnosis of problems in processes, improvement of processes and renovation of processes. We show primitive examples of the visualization. Setting up visualization environments is a key for the new age.

■Sunday, June 11, 2017, 14:45 – 16:00 (Room B)
ISOMS Sessions 5："Miscellaneous Session"
Chair：Takao Terano, Tokyo Institute of Technology

B-11 How to Manage Product Development Teams' Coordinated Search Processes?

Mohsen Jafari Songhori, Tokyo Institute of Technology
Mohammad Jalali, MIT
Takao Terano, Tokyo Institute of Technology

Coordinated or simultaneous search are ubiquitous in both organizational and product development contexts. In such situations, several specialists jointly conduct search on their own domain, and each one's pay-off is function of both his/her own choices and the others' choices. Often, unknown interactions and limited communications are main challenges in coordination search processes, and hence, specialists engage in coupled learning where they involve in mutual adjustment process based on trial and error. While these characteristics has been examined in a theoretical organizational and agent-based simulation models, they are, also, present in product design and development projects. In this line, using NK landscape simulation and reinforcement learning models, we examine how features of couple learning processes (e.g. initial representations held by the design teams in coupled learning processes) among product development teams affect their performance. Lastly, we discuss the managerial implications of the model for product development and operations managers.

B-12 Managing new product ideas on crowd-sourcing initiatives

Mohsen Jafari Songhori, Tokyo Institute of Technology
Mohammad Jalali, MIT
Takao Terano, Tokyo Institute of Technology

Search Firms are increasing their engagement and interactions with their customers via social media platforms (e.g. IdeaStrom by Dell). While, there are reports on successful implementation, and also, gained values by firms in using crowd-sourcing initiatives, managing these crowd-sourcing platforms are highly challenging, especially for product design and innovation (e.g. large volume of user-generated contents, unknown values of users' generated ideas to both users and firms). In this paper, we examine one important aspect of managing new product ideas on crowd-sourcing platforms which is how firms should allocate their limited number of experts to screen and evaluate a large number of ideas provided on platforms. Such evaluation is significantly important, as not attending or providing proper feedback can dis-incentivize or discourage idea generators. In this line, we use both mathematical and simulation models to examine such complex system. In particular, we incorporate mathematical models for studying manufacturing/service systems with discretionary-tasks in the OM literature, and also, collective search (simulation) models. Our results provide useful insights for managing new-ideas in crowd-sourcing initiatives.

B-13 Strategic Adaptation: Integrating Product Development Capability with Supply Chain Capability

Michiya Morita, Gakushuin University
Jose A. D. Machuca, University of Seville
Jose L. P. Díez de los Rios, University of Seville

In this study, we will present desirable adaptation patterns of the company over time. The company should adapt to changing competitive situations or requirements after introducing new products over their product life cycles. We propose two capabilities for such adaptation: product development and supply chain capabilities. The company should integrate these capabilities to meet changing competitive requirements. Competitive adaptation needs effective interactions between those capabilities. We show competitive adaptive behaviors characterized high product development and supply chain capabilities in this study. In the sense this study is

related to one of the most important strategic issue of integration of business strategy with operations Porter (1980) emphasized. We conclude with some implications related to the adaptation based on an international survey. Acknowledgement: Great thanks to Project 2015/148 (University of Seville-SGUIT(Junta Andalcia)) and JIPS (17K03952).

■Saturday, June 10, 2017, 13:45 – 15:00 (Room C)
ISOMS Sessions 2："Miscellaneous Session"
Chair：Yasutaka Kainuma, Tokyo Metropolitan University

C-1 Study on reverse logistics management of debris

Fumiya Matsuura, Tokyo Metropolitan University
Yasutaka Kainuma, Tokyo Metropolitan University

On March 11, 2011, the Great East Japan Earthquake hit Japan. In the earthquake, a lot of debris were generated by the influence of earthquake shake and tsunami. A lot of debris lead to problem which we could not supply enough relief goods to disaster area and cause delay in restoration and reconstruction. So, we should collect debris quickly and strategically to carry out relief and restoration, reconstruction smoothly. In this study, we propose logistics model which collects debris from disaster site to processing plant via some hub centers. The purpose of this study is minimizing debris collection time from disaster site to processing plant. In the earthquake, the processing operations were not started immediately because of a lot of debris. So, people who collected debris required a hub center where performed keeping and sorting debris to collect it. While considering their sides, arranging places of hub centers to keep debris temporarily is important. Therefore, we prepare some scenarios which arrange different places of hub centers and carry out the numerical experiments, using the data of the Great East Japan Earthquake. In addition, we investigate some important points of arranging places of hub centers.

C-2 Development of a disaster relief logistics model considering the satisfaction level of victims

Kei Kokaji, Tokyo Metropolitan University
Yasutaka Kainuma, Tokyo Metropolitan University

On March 11, 2011, the Great East Japan Earthquake (GEJE) attacked the North-Eastern Parts of Japan and the scale of the earthquake was the largest in recorded history in Japan. Despite Japan's great efforts in this disaster relief operation, relief goods did not reach the affected area. Same as the GEJE when the Kumamoto Earthquake which occurred on April 4, 2016, many victims suffered from lack of relief goods. It became clear that the logistics system in the situation of a disaster had a lot of problems. In a commercial situation, the main purpose of logistics is to reduce the cost. But, in a disaster situation, besides reducing the cost, numerous other factors must be considered about logistics. In this study, from the point of flow of distribution relief goods to the victims, we focus on the relationship between the shelter and the secondary collection point. The purpose of this study is to propose a logistics model that achieves the good distribution for the many victims from the view point of satisfaction level. In the earthquake, there were many routes that were unavailable and there was a limit to the number of cars that was available because of shortage of fuel. While considering these phenomena, we propose the logistics model that can improve satisfaction level of victims. Finally, in order to confirm the effectiveness of the proposed model, we perform the numerical experiments using the data of the GEJE and the efficiency of the model is confirmed.

C-3 Challenge of international development project procurement: a critical analysis from donor funded public sector project of Bangladesh

Kamrul Ahsan, RMIT University

This research investigates critical procurement challenges of donor funded international development (ID) projects operating in Bangladesh. Initially, through an intensive literature review, a framework of ID project procurement challenges is developed, which consist of four challenge-categories and 14 challenges. To rank the critical challenges of ID project procurement we conduct Analytical Hierarchy Processing (AHP) based structured interviews with the ID project procurement experts from donor agencies, host country government policymakers, and project implementation units. Analysis shows that the most critical challenges which were deemed to have the greatest impact on procurement were related to improper project planning, undue practices

in procurement implementation process, government bureaucracy and interference in procurement, and inexperienced procurement staff. This research contributes to the ID project procurement theory and practice by identifying key challenge categories and critical challenges of procurement in the multi-billion dollar ID project procurement process in Bangladesh.

■Sunday, June 11, 2017, 13:15 – 14:30 (Room C)
ISOMS Sessions 4："Miscellaneous Session"
Chair：Yoshiki Matsui, Yokohama National University

C-4 On the dynamics of closed loop supply chains with auto- and cross-correlated demand and return processes

Takamichi Hosoda, Aoyama Gakuin University
Stephen M. Disney, Cardiff University

We investigate the dynamics of a closed-loop supply chain with first-order auto-regressive (AR(1)) demand and return processes and establish an optimal linear policy in our CLSC setting to minimize inventory costs. We model a proportional random yield in the triage process of the auto- and cross-correlated returns. Our modelling setting is general enough to capture instances when the lead-time paradox exists, supporting van der Laan et al. (1999), Inderfurth and van der Laan (2001), and Hosoda et al. (2015), and when the lead-time paradox does not exist, supporting Zhou and Disney (2006) and Cannella et al. (2016). Our theoretical contribution effectively integrates the two schools of thought on the lead-time paradox, thus representing a unified theory for CLSCs. We reveal that the lead-time paradox can exist in the bullwhip effect, the capacity cost and the inventory cost. Our managerial recommendations for manufacturers in CLSCs are:|||Rule 1: When the remanufacturing lead time is equal to or longer than the manufacturing lead time, shortening the manufacturing lead time reduces your capacity and inventory costs. Also in this setting, higher returns do not increase inventory costs. Shortening the remanufacturing lead time does not contribute to lower inventory costs but could generate some other benefits, such as lower capacity cost and in-transit inventory.|||Rule 2: When the remanufacturing lead time is less than the manufacturing lead time, you should understand that: a) the lead-time paradox can emerge, and b) higher mean returns always increase your inventory cost. Point a) suggests that shortening the remanufacturing lead time may not have desirable consequences. Point b) highlights the conflicting incentives between company performance and societal needs. To avoid these consequences, first shorten the manufacturing lead time until both lead times are equal. Then your incentives are aligned and Rule 1 applies.

C-5 Analyzing the feasibility of implementing sustainability practices in supply chain through the interaction between the supplier and customer

Ndala Yves Mulongo, University of Johannesburg
Pule Kholopane, University of Johannesburg

In today's world manufacturing firms are being considered as key actors to promote sustainability. In light to this, and with regards to increased demands from different stakeholder, many firms are seeking ways with the objective of improving the activities associated with their Supply Chain Management. Important issues may be put in front line. Firstly, manufacturing firms are viewed as responsible for social and environmental concerns created by their suppliers that is becoming very critical. Secondly, an increased share of worth is generally caused at the supplier level. With regard to these requirements, manufacturing firms are compelled to identify ways to include social and environmental aspects within their Supply Chain Management (SCM). Though, the field of sustainable supply chain has been extensively studied in the last decade, however many studies focus more on the ''what'' of Sustainable Supply Chain Management than on the ''how'' there is still a gap concerning the understanding of achieving sustainable development within the SCM. Therefore, the main goal of this thesis is to identify how sustainability practices could be implemented in the supply chain through the interaction between the suppliers and customers.

C-6 Relationship between quality management practices and sustainability performance in Vietnam

Nguyen Hue Minh, Yokohama National University
Phan Chi Anh, Vietnam National University
Yoshiki Matsui, Yokohama National University

Sustainable development represents a growing concern by the entire humankind. Recognizing substantial effects of economic activities on the global sustainable development, many enterprises started implementing sustainability management systems. "Sustainability management" was defined as accelerating the adoption of best management principles, models, and practices throughout the operations system, and enabling the environment to achieve sustainable development (Kuei & Lu, 2013). Quality management which is often regarded as an important management system to improve operations performance, in this sense, is a feasible approach contributing to sustainability performance. This study aims to investigate the relationship between quality management practices and sustainability performance. Eight constructs were utilized to evaluate quality management practices comprising 1-Top management support for quality management, 2-Training, 3-Product/service design, 4-Quality data and reporting, 5-Process management, 6-Continuous improvement, 7-Problem solving, and 8-Rewards. Three constructs were used to assess sustainability performance including 1-Economic performance, 2-Environmental performance, and 3-Social performance. A questionnaire was designed to collect data from cross-sectional enterprises operating in Vietnam. Based on 143 valid responses collected from September 2016 to March 2017, regression analysis results show significant impact of quality management practices to different dimensions of sustainability performance. The paper provides new empirical evidence on the contribution of quality management to sustainability performance. It enriches the literature on sustainable development and provides managerial insights on how enterprises would improve sustainability performance by their operational practices.

■Sunday, June 11, 2017, 14:45 – 16:00 (Room C)
ISOMS Sessions 4："Miscellaneous Session"
Chair：Kakuro Amasaka, Aoyama Gakuin University

C-7 Organizational Coordination in Process Industry Comparison Study on Steel and Beer

Sungwoo Byun, Kindai University
Junichi Tomita, Toyo University

Organizational coordination is a critical factor in operations in process industry. Especially in manufacturing ‘high-grade’ products (ex: automotive sheet in steel industry), orchestration of related processes requires accumulation of knowhow and experience, which leads to competitiveness. In this study, we elaborate on organizational coordination in steel industry and beer brewery industry focusing on total optimum and partial optimum. In other words, when a firm manufactures high-grade products, total optimum of all related processes can be realized with sacrifice of specific processes in terms of productivity, lead time and yield. Through comparison study between steel industry and beer brewery industry, we try to generalize ‘how organizational coordination works’ and ‘why it matters to process industry’.

C-8 The National Innovation System in Vietnam in the Face of Industrial Revolution 4.0

Phan Dinh Manh, Yokohama National University
Yoshiki Matsui, Yokohama National University

The paper employs the qualitative approach by critically analyzing the current literature such as academic journals, magazines and newspapers in Vietnamese and English to develop SWOT matrix of Vietnamese National Innovation System. From the strategic issues developed from the above analysis, several solutions from other successful economies such as Japan, Taiwan, South Korea and the like will be considered under the context of Vietnamese conditions and in the face of Industrial Revolution 4.0. The suitable choices will be suggested for the country in terms of the government level and enterprise level in the short term as well as in the long term to cope with the Industrial revolution 4.0. The paper will not only be for the specific case of Vietnam but can be considered as, to some extent, a study for the emerging world in general.

C-9 Studies on Automobile Exterior Design Model using Customer Science Principle

Kakuro Amasaka, Aoyama Gakuin University

It is quite important for mapping up design strategies to study on "what style of vehicles would sell in the future?". As customer values become increasingly diverse, automobile exterior design is becoming one of the most critical elements influencing customer purchase behavior for automakers as well. The author develops the scientific approach to customers' tastes" creating "Automobile Exterior Design Model" (AEDM). To address this issue, the author establishes by means of "Customer Science Principle" using statistical science named "Design SQC" that capture the customers' tastes by employing "SQC Technical Methods." The AEDM means turning the design business process into an explicit knowledge as more creative activities from the implicit knowledge of designing for customer value creation. One original idea was creating a vehicle proportion, form, and color matching methodology using AEDM, and the effectiveness of this study was then verified.

JOMSA 第9回全国研究発表大会

Abstracts

■2017年6月10日(土)11:15～12:45 (Room A)
JOMSA セッション1:「サステイナブル・オペレーション」
座長:富田純一 (東洋大学)

A-1 カニバリゼーションを考慮した製造・再製造制御システムに関する研究

東京理科大学 奥田彩子
東京理科大学 石垣綾
電気通信大学 山田哲男

近年, 環境負荷を低減する活動が増えていることから, 循環型サプライチェーンを構築することが社会的責任や競争優位性を築くためにも必要とされている. 一方で, 企業において循環型サプライチェーンを持続するためには回収品の確保や制御が重要である. すなわち, メーカーは持続可能な循環型サプライチェーンを構築するために, 製品の動向を理解した上で顧客からの要望を満たすような生産計画をたてなければならない. ||| 再製造品の価格が新製品よりも安い場合, 製品の機能や保証が等しいならば顧客は再製造品を購入する傾向がある. すなわち, 再製造品が市場に導入されることによる新製品の売上減少が発生することから, カニバリゼーションを考慮して新製品と再製造品の生産計画を立てる必要がある. 本研究は, 需要や戻り品が変動する場合において, カニバリゼーションを考慮した製造・再製造の制御方法を明らかにすることを目的としている.

A-2 クローズド・ループ・サプライ・チェーンにおけるリマニュファクチャリング製品の利益の評価

首都大学東京大学院 七澤 巧
首都大学東京 開沼 泰隆

環境問題に対する取り組みの必要性が高まり, 従来のサプライ・チェーンに再製造や再利用, リサイクルなどを考慮したクローズド・ループ・サプライ・チェーン(CLSC)が注目されている. しかし, 再製造製品を販売することで起こるカニバリゼーション効果(本来新製品を購入していただろう消費者の中で, 低価格な再製造製品に切り替えてしまう消費者もいるため, 新製品の需要に影響を与えてしまうこと)は企業の CLSC 推進の懸念材料となる. そこで本研究は, カニバリゼーション効果を定量的に評価し, 企業の得る利益への影響を検討することを目的としている. また, 本研究の特色としては, 消費者の支払意思額(WTP:Willingness To Pay)を考慮することで再製造製品の価格決定モデルの提案を行っていることである. 数値実験の結果, これらを考慮することでカニバリゼーション効果が抑制され, 再製造製品が企業の利益を増大させることが明らかになった.

A-3 太陽光発電産業における国際競争力、アーキテクチャ、産業政策の相互作用分析

東洋大学 富田純一

太陽光発電産業は、地球温暖化防止や原発縮小等を背景として、国内外でその普及促進がなされてきた。一方、企業動向に目を向けると、FIT(固定価格買取制度)を導入した国々に次々と企業が参入し、激しい競争が繰り広げられている。中でも注目すべきは、市場でトップシェアを獲得した太陽電池企業がことごとく経営破綻するという現象が観察されている点である。本報告では、こうした産業のダイナミクスに対して、国の産業政策、企業の競争戦略に基づく国際競争力、設計思想としての製品アーキテクチャといった三つの観点に着目し、それらの相互作用について分析を行うことで、上記現象の説明を試みる。

■2015年6月11日（日）13：45～15：00(Room A)
JOMSA セッション2：「クオリティー評価・創造」
座長：海老根敦子 （駿河台大学）

A-4 複合完結サービスにおける品質評価と継続意志の関連モデルの検討 医薬分業を対象として

北海道薬科大学 櫻井秀彦

医薬分業では、診察・処方と調剤のサービスが別個に提供されて外来医療サービスとして成立している。本研究では、処方医療機関と薬局の評価、継続利用と服薬意志について調査し、その関連性を探った。|||外来慢性疾患患者への Web 調査で、医療機関と処方医、薬局と薬剤師の評価、更には施設利用と薬物療法の継続意志を測定した。サービス評価要素、総合満足、継続意志等が順に影響する構造方程式モデルを検討した。|||1952 件のデータが得られ、総合満足では薬局から医療機関への影響のみ有意であった。また、継続利用意志は医療機関と薬局の双方向の影響が有意であった。更に、服薬継続意志には医療機関、薬局の順で総合満足が影響したが、影響度は低かった。|||以上から、薬局が処方元の患者評価を補完し、継続意思では双方が影響するなど分業制度の役割が認識されていることが伺われた。また、服薬継続意思については患者由来等、他の影響要因を探る必要性も示唆された。

A-5 Essential Elements of an Organizational Communication Model to Describe a Communication State for Quality-Creating Management

Atsuko Ebine, Surugadai University

An organizational communication model (IFM) is developed to test a hypothesis; good organizational communication is essential for quality-creating management. This hypothesis has been roughly proved by our preceding works. More precise study needs a more realistic model. There has been no communication model good enough to analyze organizational communication. The model should simulate whole the process of information exchange among members of an organization to describe a dynamic state of organizational communication. Description of a dynamic state needs a space-time where the orientation and the propagation of communication can be described. Interaction among members of an organization and intra-personal interaction between information and individual intellectual system are explicitly presented. A set of these interactions makes a field with a potential to improve communication state. And the field has a potential to induce quality-creating potential, which is our conjecture. Specific features of existing communication models are compared.

■2015年6月11日（日）14：45 ～16：00 (Room A)
JOMSA セッション3：「SCM イノベーション」
座長：Yacob Khojasteh （上智大学）

A-9 グローバル・サプライ・チェーンにおける生産拠点の選定に関する検討

首都大学東京大学院 上田隼大
文化学園大学 須山憲之
高千穂大学 降簱徹馬
上智大学 Yacob Khojasteh
首都大学東京 開沼 泰隆

1990 年代以降,長期的な円高にあり，安価な労働力や新興国需要の増加等を背景に製造業の海外進出が続いた．しかし近年，円高の緩和やアジア諸国で人件費等のコストが上昇しており，その差は縮小しつつある．生産拠点によ

ってコストや品質，関税，リードタイム，リスクなどが異なるため，これらを考慮した最適な拠点を選定する必要がある．本研究では，生産拠点を海外移転するオフショアリングと生産拠点を国内回帰するリショアリングのサプライ・チェーンについてモデルを構築し，シミュレーションによるシナリオ分析により各条件が税引き後期待利益に与える影響を評価することを目的としている． 検討したモデルは，原料サプライヤー，部品工場，組立工場，配送センターで構成されており，組立工場が中国の場合と日本の場合を比較する．為替，移転価格，生産台数についてそれぞれ 3 条件ずつの組み合わせで計 27 通りのシナリオを作り，数値実験による比較を行った．

A-10　イノベーション実現のためのコンセンサス形成ウェブアプリケーション普及のための標準化戦略

立教大学　　深見嘉明

標準化戦略 IoT など、多様なコンポーネントがネットワークを介して連携して提供されるサービスの設計には、コンポーネント間の相互可用性を実現する標準仕様の策定・普及が必須条件となる。つまり今後のイノベーションは、その実現に必須となる機能をどう実装するかについてのコンセンサス形成が不可避のプロセスとなる。本発表では、IoT 時代のイノベーションに必須となる条件を整理するとともに、標準仕様に標準仕様に要素技術を盛り込むことでイノベーションを実現した事例であるウェブアプリケーションの実現・普及プロセスを分析し、戦略形成に必要な要素を抽出する。

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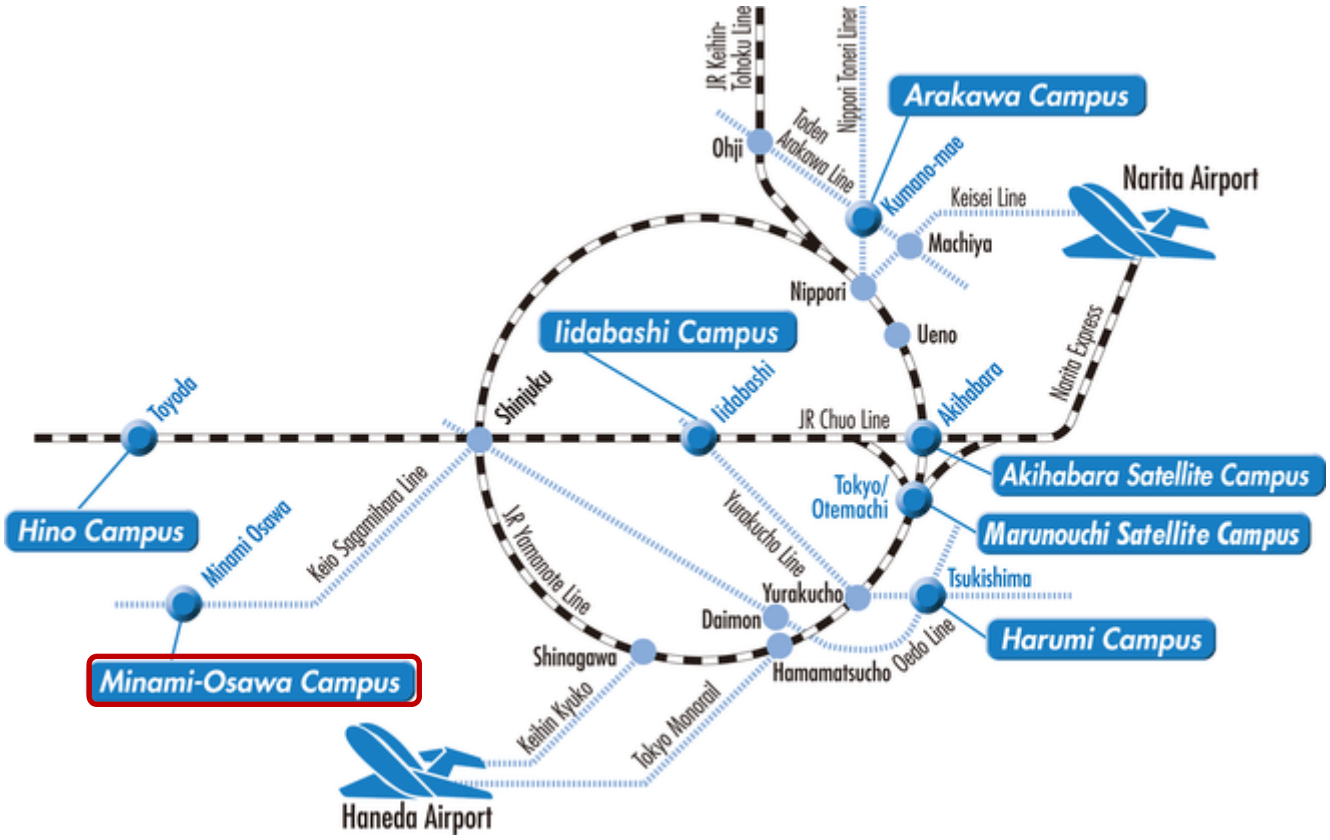

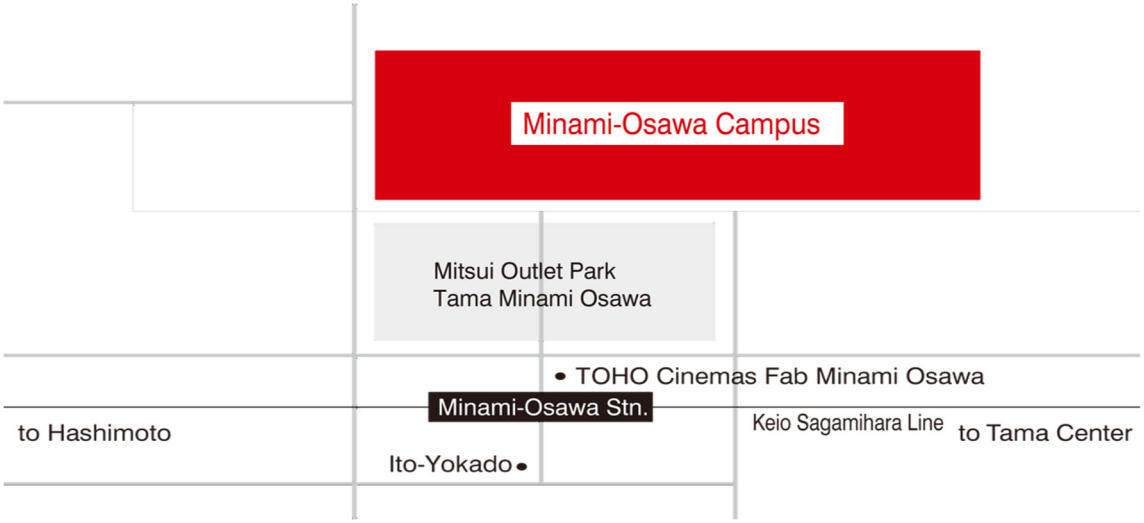

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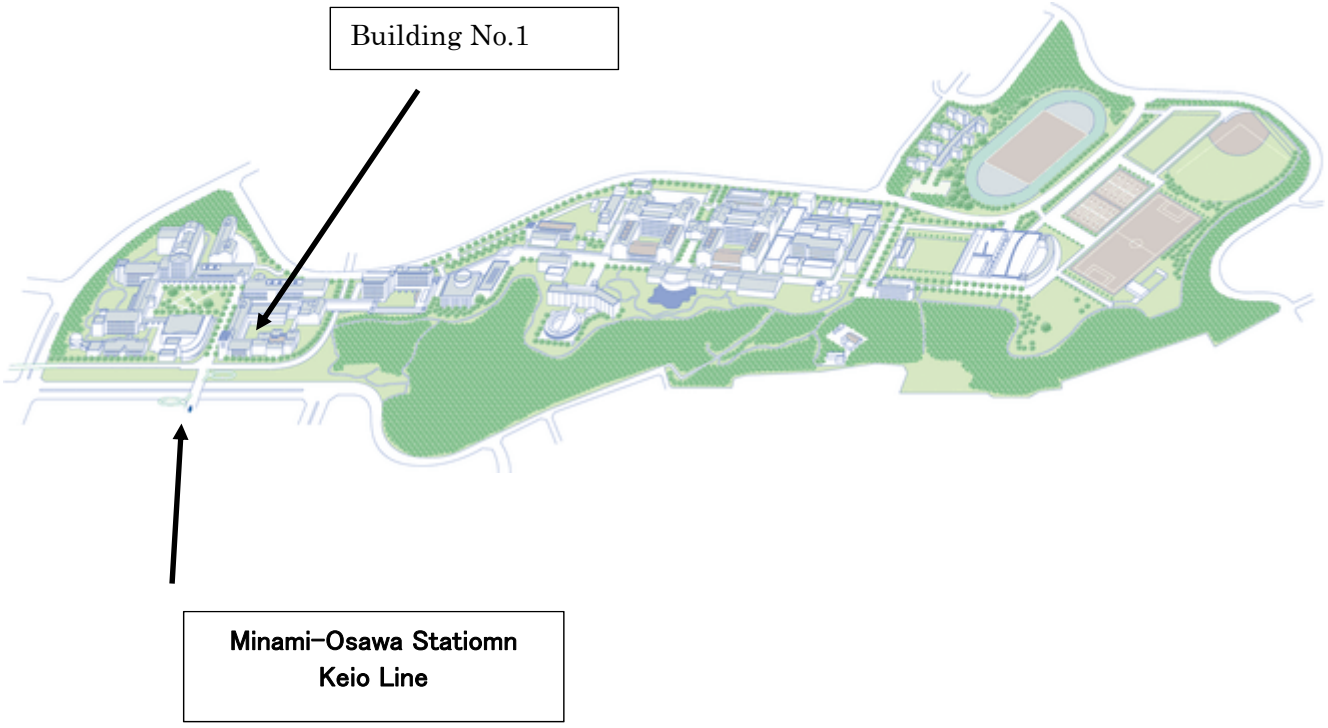
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〒192-0397 東京都八王子市南大沢 1-1

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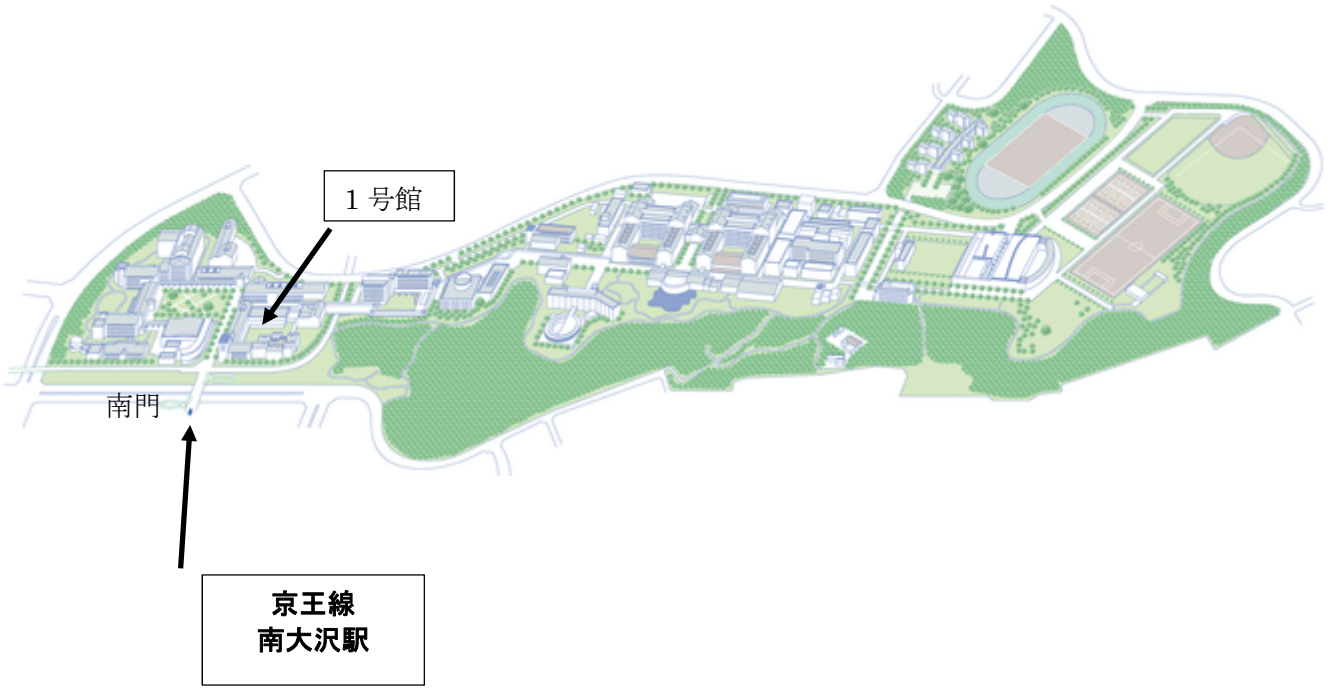

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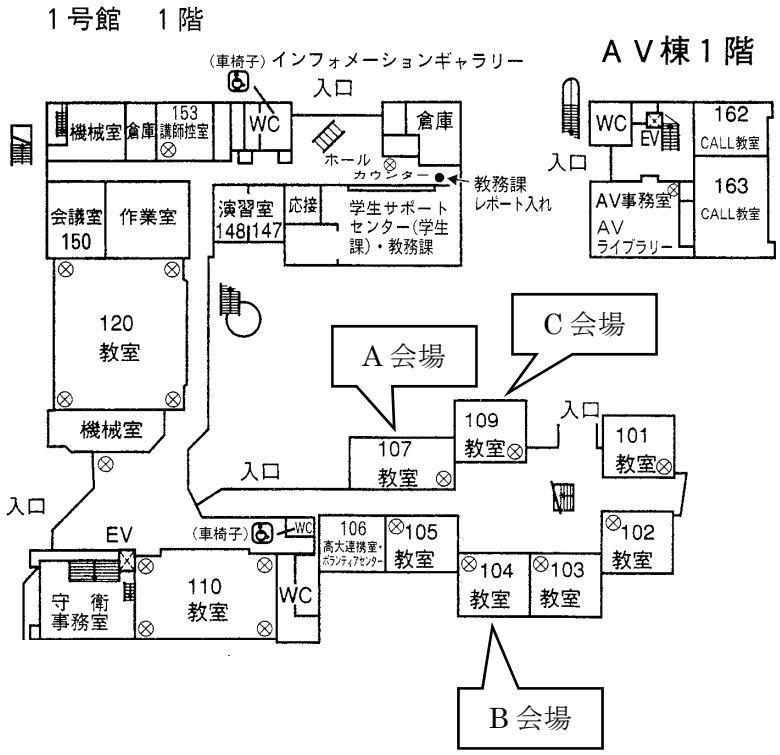
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ホール
カウンター
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教務課
レポート入れ
会議室
150
作業室
演習室
148 147
応接
学生サポート
センター(学生
課)・教務課
120
教室
機械室
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A会場
C会場
107
教室
109
教室
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101
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106
高大連携室・
ボランティアセンター
105
教室
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教室
守衛
事務室
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