

Course Outline

Course Code : DOS4712
Course Title : COORDINATION AND FLEXIBILITY IN SCM
Class Date : From 15/8/2025 To 14/11/2025
Semester : Semester 1, Academic Year 2025
Faculty : Business
Department : Analytics & Operations
Email : bizgpg@nus.edu.sg
URL : [Click here to enter text](#)
Telephone : [Click here to enter text](#)

Overview

Supply chains have become far-flung and global as companies expand their operations to new markets and new supply sources. Concurrently, a number of macro-trends are emerging and evolving which cause changes to traditional supply chains structures and assumptions. These include: rising costs in the usual outsourcing manufacturing sites, entering into emerging markets, changing country regulations and regional trade agreements, impact of technologies on new business models and process changes, cross-border M&A, and emerging marketing companies expanding regionally, etc.

Companies will have to continuously evaluate their strategies and adapt their supply chains to deal with these changes. They will need to improve their flexibility, coordination, and responsiveness to deal with the risks and opportunities.

Course Objectives

The course will cover functional areas of the supply chain and integration of these concepts into a holistic framework. It will examine how global supply chain configurations are changing and adapting, and how companies should prepare for the impact of macroeconomic trends and new technologies to their business models, distribution, and supply chains. Through case studies, simulation game, and project work, students will gain a better understanding of corporate strategies, and how to align their supply chains and manage risks.

- 1) Key supply chain concepts and strategies
- 2) Global supply chain configuration and re-alignment
- 3) Planning for supply chain risk and disruption
- 4) Simulation game
- 5) Impact of technology innovations and new business models
- 6) Group project

PREREQUISITE

- (1) DSC2006 Operations Management or DAO2703 Operations and Technology Management
- (2) DSC3201/DOS3701 Supply Chain Management
- (3) DAO1704/DAO1704X Decision Analytics using Spreadsheets (or has knowledge of calculus and probability)

PRECLUSION

BMS5202: Global Supply Chain Management

Assessment

| Assessment Components | Weight |
|------------------------|-------------|
| Individual Assignments | 15% |
| Midterm Test | 25% |
| Class Participation | 15% |
| Group Simulation Game | 20% |
| Group Project | 25% |
| Total | 100% |

Schedule and Outline

| Lesson/ Week | Date | Session (lesson summary or outline / learning objectives / preparation / cases & assignments / follow-up readings & resources) | Readings | Indicative deadlines |
|-----------------|----------------------|--|---|-------------------------|
| 1 | 15 th Aug | Course Introduction: structure and expectations Challenges and risks of a global supply chain, in an era of globalization, macroeconomic changes, emerging markets, and disruptive technologies | Textbook Preface and Chapter 1: Global Value Chain Evolution: Implications for the World “Are the Risks of Global Supply Chains Starting to Outweigh the Rewards?” “Lego says nearshoring production minimizes distribution costs” “The shifting landscape of tariffs: Strategies for supply chain resilience” | |
| 2 | 22 nd Aug | Managing global supply chains Impact of macroeconomic factors Managing procurement Case: The impact of oil prices on supply chain structures Case: Casella Wines Case: Walmart – procurement for competitive advantage | “Containerships opt for Cape Route” “Maersk, CMA CGM impose container surcharges over Red Sea diversions” “Fears of higher oil prices after Red Sea attacks” | |

| | | | | |
|---|----------------------|---|--|---|
| 3 | 29 th Aug | Manufacturing strategies and digitalization of products Push versus pull concepts Case: Assa Abloy --- transforming a traditional lock business Smart factories and advanced manufacturing Explanation of simulation game | “Nike Will Let People Design and Sell Sneakers for the Metaverse” “New Hyundai facility in Singapore could one day build flying cars” “Frontier Technologies in Industrial Operations: The Rise of Artificial Intelligence Agents” | Submission of teams for projects and simulation game |
| 4 | 5 th Sep | Planning for supply chain risk and disruption Risk Management framework Strategic and operational contingency planning Case: Transport Intelligence System by Transported Asset Protection Association (TAPA) Case: Food security | “Designing Resilience into Global Supply Chains” “The business must go on: get contingency planning right” “When disaster strikes: How do you build resilient supply chains?” | Simulation game round 1 and 2 Assignment 1 due |
| 5 | 12 th Sep | Considerations in supply chain risk and resilience: sustainability and inventory Holistic view of supply chains Inventory risk management – incorporating just in case Case: HP – optimizing the global supply chain Sustainability considerations Key issues around supply chain sustainability Case: Flyoro – Enabling onsite blending of Sustainable Aviation Fuel Case: SK Tes – Recycling of electronic waste | Textbook Chapter 12: Creating a Resilient Fashion Value Chain “How Manufacturers Lost The Inventory Battle” “Tariffs will cost Harley more than \$40 million in 2018” “Sony, Suntory build U.S. stockpiles as Japan faces Trump tariff threat” “For manufacturers, the circular economy strengthens supply chains. Here's how” “Legislation is coming for fashion’s supply chains. Are you ready?” Greener Supply Chains: IKEA, Schneider Electric & npower” | Simulation Game Round 3 and 4 |

| | | | | |
|---|----------------------|---|---|---|
| | | | | |
| 6 | 19 th Sep | Considerations in supply chain risk and resilience: sourcing, manufacturing and distribution The new manufacturing hubs New distribution networks Case: Foxconn and its manufacturing decisions Case: The new China-Europe distribution network | Textbook Chapter 2: The Role of Vietnam in Global Supply Chains “U.S. and European firms face \$1 trillion in costs to relocate their Chinese supply chains, BofA says” “Even Chinese companies are moving supply chains out China to avoid geopolitical risks. Here are the 6 places they're heading for instead” India's Rise In The Global Supply Chain | Simulation game Round 5 and 6 |
| | 26 th Sep | Recess week (may be used for makeup class) | | |
| 7 | 3 rd Oct | Simulation game debrief Prize giving | | Submission of simulation game report before class |
| 8 | 10 th Oct | Supply chain as competitive strategy Entering New Markets Outsourcing vs inhouse decisions Supply chain collaboration and integration Case: Lego’s outsourcing experience -- “We are more special than we expected” Case: Bossard – VMI using Smart Bin | “How Real-Time Inventory-Level Visibility Drives Retail To Efficiency” “Moving Up The Value Chain -- A Strategic Imperative For Asian SMEs” | Assignment 2 due |
| 9 | 17 th Oct | Impact of technologies on global supply chains Automation and robotics 3D printing | The Robot Revolution: The New Age of Manufacturing Moving Upstream | |

| | | | | |
|----|----------------------|---|--|-----------------------------------|
| | | Use of AI in supply chains | Textbook Chapter 11: Key Lessons from Using 3D Printing in the Fight Against Covid-19 “3D Printing And The New Economics Of Manufacturing” “Revolutionizing Supply Chains: The Game-Changing Impact Of AI” “AI power: Expanding data center capacity to meet growing demand” “Redefining Manufacturing: The AI Revolution in Productivity” “Autonomous Sourcing: The Key to AI-Enhanced, Efficient Procurement” “Best Buy launches AI-powered delivery tracking” | |
| 10 | 24 th Oct | Midterm | | |
| 11 | 31 st Oct | New distribution channels and new distribution models The rise of e-commerce and omni-channels Blurring of lines between retail, logistics, e-commerce Platform businesses Industry Guest Speaker Case: Amazon and its transformation from pure e-commerce | Textbook Chapter 3: Warehouses for E-commerce — An Expanding Infrastructure Requirement “Chinese e-commerce's growing markets in US and beyond” “So Much For the Return of In-Person Shopping: Retailers Could Close 50,000 Stores by 2027” “The dark side of Amazon returns: Boxes getting sent back has metastasized to an \$816 billion yearly problem” “U.S. may need another 1 billion square feet of warehouse space by 2025 as e-commerce booms” | |
| 12 | 7 th Nov | Submission and Viewing of Group Project Presentations | | Submission of Group Project Video |

| | | | | |
|----|----------------------|--|--|---|
| | | No physical lesson in class. Watch the presentations online | | Class voting for best projects |
| 13 | 14 th Nov | Group Project debrief Prize presentation for winning teams Course wrapup: Supply chains of the future | “3 major companies trying to move supply chains out of China, and how they're faring in their attempts to move away from the factory of the world” “AI, automation, and the future of work: Ten things to solve for” “How To Future-Proof Supply Chains” | Submission of project report (PPT format) |

General Guide & Reading (e.g. Case preparation guide, project report guide, main textbook & supplementary materials, etc)

Textbook: Global Supply Chains in a Glocal World: The Impact of Covid-19 and Digitalisation, Puay Guan Goh and Mabel C Chou, World Scientific, 2022

Article Readings and Videos

“Are the Risks of Global Supply Chains Starting to Outweigh the Rewards?”, Shih, Willy, Harvard Business Review, Mar 21, 2022, accessed at <https://hbr.org/2022/03/are-the-risks-of-global-supply-chains-starting-to-outweigh-the-rewards>

“Lego says nearshoring production minimizes distribution costs”, Stroh, Kelly, Supply Chain Dive, Sep 17, 2024, accessed at <https://www.supplychaindive.com/news/lego-production-near-end-markets-virginia-plant-mexico/727171/>

“The shifting landscape of tariffs: Strategies for supply chain resilience”, Colehower, Jonathan, Supply Chain Management Review, Mar 3, 2025, accessed at <https://www.scmr.com/article/the-shifting-landscape-of-tariffs-strategies-for-supply-chain-resilience>

“Containerships opt for Cape Route”, Global Maritime Hub, accessed at <https://globalmaritimehub.com/containerships-opt-for-cape-route.html>

“Maersk, CMA CGM impose container surcharges over Red Sea diversions”, CNBC, Dec 22, 2023, accessed at <https://www.cnbc.com/2023/12/22/maersk-cma-cgm-impose-container-surcharges-over-red-sea-diversions.html>

“Fears of higher oil prices after Red Sea attacks”, Edser, Nick, BBC, 19 Dec 2023, accessed at <https://www.bbc.com/news/business-67758126>

“Nike Will Let People Design and Sell Sneakers for the Metaverse”, Francesca Perry, Nov 14, 2022, Wired, accessed at <https://www.wired.com/story/nike-will-let-people-design-and-sell-sneakers-for-the-metaverse/>

“New Hyundai facility in Singapore could one day build flying cars”, Business Times,
<https://www.youtube.com/watch?v=dJsoilr49m0>

“Frontier Technologies in Industrial Operations: The Rise of Artificial Intelligence Agents”, World Economic Forum, Jan 2025, accessed at
https://reports.weforum.org/docs/WEF_Frontier_Technologies_in_Industrial_Operations_2025.pdf

“Designing Resilience into Global Supply Chains”, Aylor et. Al., BCG, accessed at
<https://www.bcg.com/publications/2020/resilience-in-global-supply-chains>

“The business must go on: get contingency planning right”, Goh, Puay Guan, Yahoo, 14 February 2020, accessed at <https://sg.news.yahoo.com/the-business-must-go-on-get-contingency-planning-right-093051152.html>

“When disaster strikes: How do you build resilient supply chains?”, DHL, Jan 2019, accessed at
<https://www.dhl.com/global-en/home/about-us/delivered-magazine/articles/2019/issue-1-2019/disaster-resilient-supply-chains.html>

“How Manufacturers Lost The Inventory Battle”, Cecere, Loren, Forbes, May 2, 2023, accessed at
<https://www.forbes.com/sites/loracecere/2023/05/02/how-manufacturers-lost-the-inventory-battle/>

“Sony, Suntory build U.S. stockpiles as Japan faces Trump tariff threat”, Kelly et al., Reuters, Mar 6, 2025, accessed at <https://www.reuters.com/business/sony-suntory-build-us-stockpiles-japan-faces-trump-tariff-threat-2025-03-05/>

“Tariffs will cost Harley more than \$40 million in 2018” Robert Ferris, CNBC Network, 23rd Oct 2018, assessed at: <https://www.cnbc.com/2018/10/23/tariffs-will-cost-harley-davidson-more-than-40-million-in-2018.html>

“For manufacturers, the circular economy strengthens supply chains. Here's how”, Jensen, Henrik Hvid, World Economic Forum, Feb 27, 2024, accessed at <https://www.weforum.org/stories/2024/02/how-manufacturers-could-lead-the-way-in-building-the-circular-economy/>

“Legislation is coming for fashion’s supply chains. Are you ready?”, Doyle, Megan, Vogue, Jan 8, 2024, accessed at <https://www.voguebusiness.com/story/sustainability/legislation-is-coming-for-fashions-supply-chains-are-you-ready>

“Greener Supply Chains: IKEA, Schneider Electric & npower”, Hargreaves, Libby, Supply Chain Digital, Aug 2, 2024, accessed at <https://supplychaindigital.com/articles/greener-supply-chains-ikea-schneider-electric-npower>

“Even Chinese companies are moving supply chains out China to avoid geopolitical risks. Here are the 6 places they're heading for instead”, Tan, Huileng, Business Insider, Apr 22, 2023, accessed at <https://www.businessinsider.com/chinese-supply-chains-moving-companies-outside-mainland-2023-4>

“U.S. and European firms face \$1 trillion in costs to relocate their Chinese supply chains, BofA says”, Smith, Elliott, CNBC, Aug 18, 2020, accessed at <https://www.cnbc.com/2020/08/18/bofa-us-european-firms-face-1-trillion-to-relocate-china-supply-chains.html>

“India's Rise In The Global Supply Chain”, Evans, Dave, Forbes, May 20, 2024, accessed at <https://www.forbes.com/sites/daveevans/2024/05/20/indias-rise-in-the-global-supply-chain/>

“How Real-Time Inventory-Level Visibility Drives Retail To Efficiency”, De Muynck, Bart, Forbes, Nov 7, 2023, accessed at <https://www.forbes.com/sites/forbestechcouncil/2023/11/07/how-real-time-inventory-level-visibility-drives-retail-to-efficiency/>

“Moving Up The Value Chain -- A Strategic Imperative For Asian SMEs”, Goh, Puay Guan, Oct 1, 2018, accessed at <https://www.forbes.com/sites/outofasia/2018/10/01/moving-up-the-value-chain-a-strategic-imperative-for-asian-smes/?sh=3192cb335ebd>

The Robot Revolution: The New Age of Manufacturing | Moving Upstream, accessed at <https://www.youtube.com/watch?v=HX6M4QunVmA>

“3D Printing And The New Economics Of Manufacturing”, Smith Rick, Forbes, Jun 22, 2015, accessed at <https://www.forbes.com/sites/ricksmith/2015/06/22/henry-ford-3d-printing-and-the-new-economics-of-manufacturing/2/#4229886e48d8>

“Revolutionizing Supply Chains: The Game-Changing Impact Of AI”, Anand, Ketan, Nov 6, 2024, accessed at <https://www.forbes.com/councils/forbestechcouncil/2024/11/06/revolutionizing-supply-chains-the-game-changing-impact-of-ai/>

“Redefining Manufacturing: The AI Revolution in Productivity”, Paez, Jose, Supply Chain Brain, Aug 21, 2024, accessed at <https://www.supplychainbrain.com/blogs/1-think-tank/post/40134-redefining-manufacturing-the-ai-revolution-in-productivity>

“Autonomous Sourcing: The Key to AI-Enhanced, Efficient Procurement”, Hausmann, Keith, Supply Chain Brain, Oct 2, 2024, accessed at <https://www.supplychainbrain.com/blogs/1-think-tank/post/40371-autonomous-sourcing-the-key-to-ai-enhanced-efficient-procurement>

“Best Buy launches AI-powered delivery tracking”, Delestine III, Nate, Supply Chain Dive, Aug 22, 2024, accessed at <https://www.supplychaindive.com/news/best-buy-launches-artificial-intelligence-delivery-tracking/724869/>

“AI power: Expanding data center capacity to meet growing demand”, McKinsey, Oct 29, 2024, accessed at <https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/ai-power-expanding-data-center-capacity-to-meet-growing-demand>

“So Much For the Return of In-Person Shopping: Retailers Could Close 50,000 Stores by 2027”, Escobar, Sabrina, April 12, 2023, Barrons, accessed at <https://www.barrons.com/articles/retailers-closing-stores-cc14dbd4>

“The dark side of Amazon returns: Boxes getting sent back has metastasized to an \$816 billion yearly problem”, Peinkofer, Simone, Fortune, June 15, 2023, accessed at <https://fortune.com/2023/06/14/amazon-returns-ecommerce-how-bad-big-problem-816-billion/>

“Focus: Amazon, other retailers revamp 'free' shipping as costs soar”, Baertlein, Lisa, Reuters, March 25, 2023, accessed at <https://www.reuters.com/business/retail-consumer/amazon-other-retailers-revamp-free-shipping-costs-soar-2023-03-24/>

“U.S. may need another 1 billion square feet of warehouse space by 2025 as e-commerce booms”, Thomas, Lauren, Jul 9 2020, CNBC, accessed at <https://www.cnbc.com/2020/07/09/us-may-need-another-1-billion-square-feet-of-warehouse-space-by-2025.html>

“3 major companies trying to move supply chains out of China, and how they're faring in their attempts to move away from the factory of the world”, Tan, Huileng, Business Insider, Jun 27, 2023, accessed at <https://www.businessinsider.com/companies-leaving-china-diversifying-supply-chains-apple-tsmc-mazda-2023-6>

“How To Future-Proof Supply Chains”, IESE Business School, Forbes, Jul 27, 2021, accessed at <https://www.forbes.com/sites/iese/2021/07/27/how-to-future-proof-supply-chains/?sh=358a380920f2>

“AI, automation, and the future of work: Ten things to solve for”, Manyika, James and Kevin Sneader, McKinsey Global Institute, accessed at <https://www.mckinsey.com/featured-insights/future-of-work/ai-automation-and-the-future-of-work-ten-things-to-solve-for>

Academic Honesty & Plagiarism

Academic integrity and honesty is essential for the pursuit and acquisition of knowledge. The University and School expect every student to uphold academic integrity & honesty at all times. Academic dishonesty is any misrepresentation with the intent to deceive, or failure to acknowledge the source, or falsification of information, or inaccuracy of statements, or cheating at examinations/tests, or inappropriate use of resources.

Plagiarism is ‘the practice of taking someone else's work or ideas and passing them off as one's own’ (The New Oxford Dictionary of English). The University and School will not condone plagiarism. Students should adopt this rule - You have the obligation to make clear to the assessor which is your own work, and which is the work of others. Otherwise, your assessor is entitled to assume that everything being presented for assessment is being presented as entirely your own work. This is a minimum standard. In case of any doubts, you should consult your instructor.

Additional guidance is available at:

- [Administrative Policies](#)
- <http://www.nus.edu.sg/registrar/administrative-policies-procedures/acceptance-record#NUSCodeofStudentConduct>
- <http://nus.edu.sg/osa/resources/code-of-student-conduct>