**Competitive Supply Chains**

01/2023

Bloomfield Building, Room 527

Monday, 16 & 23 January 2023; 2:00 – 8:00PM

**Teaching Staff:**

Instructor: Enver Yücesan [*enver.yucesan@insead.edu*]

Office Hours: Virtual office hours by appointment

Prerequisites: [Basic Statistics] [Operations Management]

Co-requisites: ⎯

Courses Without Credit: ⎯

Credits: 1

Study hours per week: [6 hours/week]

**Course Goals and Description**

Recent supply chain disruptions have revived a debate between lean and resilient supply chains. **Supply Chain Management** is a multidisciplinary course designed to quantify the trade-off between leanness and resilience to help you create innovative business models and deploy differentiated solutions that mitigate the tradeoff. With greater customer sophistication along with higher sensitivity on ESG, increasing network fragmentation, accelerating deglobalization and dizzying technological innovation, the primary role of supply chain management goes beyond coordinating material, information, and cash flows. This course is therefore designed to address these issues through key concepts that underpin supply chain excellence, namely value, alignment, and sustainability.

#### **Value**

Like all managers, a supply chain manager’s primary responsibility is to create value. In managing inventory, deploying an innovative business model, granting payment terms on a sales contract, negotiating a procurement contract, or investing in a new technology, she must only undertake initiatives that will create value. A value-based management approach is therefore essential in defining value in a concrete fashion and cascading it throughout the organization in a way that is consistent with a manager’s daily responsibilities and performance targets.

**Alignment**

While value creation is necessary, it does not automatically lead to value capture. It is vital to align all members of a supply chain to ensure they receive economic benefits that are commensurate with their contributions. Given that modern supply chains are decentralized ecosystems with no clear command-and-control structures, alignment does not happen organically. In the short-term, managers must therefore design effective economic incentives while working to establish trust-based win-win solutions.

#### **Sustainability**

As business models become obsolete, so do the supply chain solutions that deploy these models. It is therefore necessary to continuously assess the validity of the current supply chain solution, monitor the evolution of technologies and consumer preferences, and actively measure and manage risk. Organizations must make judicious choices in product, process, and supply chain design to proactively integrate ESG considerations by incorporating environmental constraints, producing positive social impact, and demonstrating uncompromising governance principles.

**Learning Outcomes**

Supply chain management addresses the issues of matching production and service delivery philosophies to the strategy of the firm. Moreover, it discusses how companies can design and manage supply chains to deal with the risks associated with demand-supply mismatch. In an extended enterprise setting, members of an ecosystem would typically have divergent and often conflicting interests. We therefore discuss approaches that promote alignment among these members to ensure effective supply chain management. In the last module of the course, you should therefore expect to learn:

* To quantify the devastating effect of local optimization
* To devise and deploy short-term and long-term initiatives to promote collaboration
* To assess the cost-service trade-off in evaluating supply chain investments
* To design supply chains that support the evolving strategy of your organization

**Assignments and Grading Procedures**

The course grade will be based on 3 items with the following weights:

* One **group** assignment: *The Global Supply Chain Management* simulation (20%)
* Class Participation (20%)
* Two Individual Assignments (60%)

# The *Global Supply Chain Management* Simulation

# This simulation exercise, which will be conducted in groups, will help synthesize the concepts covered during the course; in particular, it will help us better understand the impact of operational decisions on the financial performance of an organization. To this end, you will design and manage a global supply chain for a cellphone manufacturer. The scenario will be introduced in class; you will then have to find a three-hour time window with your team members to complete the simulation no later than 5PM on January 22, 2023.

# Assignment

At the end of each class session, you will be given an assignment. You will have one week to work on each assignment individually and email it to the instructor.

**Course Schedule (Topics and assignments)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Session** | **Topic** | **Key concepts** | **Case/Exercise** |
| **Jan. 16** | Value-based management | Relevant costingDefinition of value | Cliffs and Associates |
|  | Supply chain coordination | Bullwhip | Beer Game |
|  |  | Incentive design | Newsvendor model |
|  |  |  | Barilla SpA |
| **Jan. 23** | Supply chain design | Network configuration | LP: Applichem |
|  |  | Capability building | Pioneer Hi-Bred International |
|  |  | Risk management | Monte Carlo simulation |
|  |  | Digital Transformation | BeefChain |
|  |  |  | Matching platforms |
|  |  | Deglobalization | Macro data |

**Course Requirements & Course Policies**

You are expected to attend all the classes after having prepared the material for that session. Your comments and contributions to case and lecture discussions will determine your class participation grade. Your contributions to the class discussions (mostly in case discussions but also in interactive lectures) will be evaluated based on several criteria including:

1. **Relevance:** Are your points linked and integrated with the comments of others and to the particulars of the case or topic of discussion?
2. **Content**: Do your comments show evidence of analysis and understanding of the case or topic of discussion?
3. **Originality**: Do your comments contain more than a repetition of case facts or the points raised by others?
4. **Clarity**: Do your comments highlight the important points made so far and do they help to elucidate the basic concepts, issues, or themes of the case?

**Accommodation for Students with special needs**

To be arranged as needed.

**Textbook(s) and/or other materials**

There are no required textbooks for this course. The following textbooks are *recommended*:

* Yücesan, E. Competitive *Supply Chains: A Value-Based Management Perspective.* Third Edition (Palgrave, 2023)
* Fine, C.H. *Clockspeed: Winning Industry Control in the Age of Temporary Advantage* (Perseus Books, 1998)
* Cachon, G. and C. Terwiesch. *Matching Demand with Supply.* Third Edition (McGraw-Hill, 2013)

The course material along with additional relevant material can be accessed through the Moodle platform.

**Academic Integrity**

All students are expected to abide by the Code of Conduct. In addition, only those who contribute approximately equally to the preparation of the group project assignment may take full credit for it. This does not mean that everyone’s ideas must be included. It means that everyone should contribute about equally to the overall process. When someone’s name appears on an assignment, this implies that person has contributed *significantly*. If this does not hold, estimate the effort contributed by that individual (say, 50% relative to the other team members), and note this on the cover sheet. The group takes joint responsibility to avoid free riding.

**Other useful information for students**

Detailed session information will be provided in early January to give you sufficient time to prepare for the first session. Please finish the required readings prior to each class session to enrich the class discussion and to maximize your own learning.

**About the Instructor**

**Enver Yücesan** holds the Abu Dhabi Commercial Bank Chair in International Management in the Technology and Operations Management Area at INSEAD. He is an Industrial Engineer from Purdue University with a PhD in Operations Research from Cornell University. His research is at the interface of simulation, optimization, and statistics. More specifically, he focuses on complementing the modelling power of computer simulation with efficient analysis methodologies to study the dynamic behaviour of complex systems such as supply chains and social networks, which, in turn, enables robust design and effective management of these ecosystems. More recently, he has been focusing on agricultural supply chains to address key challenges such as identification of robust parent seeds, farmer contracting, small holder management, and production and inventory planning under increasing volatility driven by population dynamics and climate change. Over the past three decades, he has also been actively serving the simulation community at large in various editorial and administrative positions; in recognition of his contributions, the INFORMS Simulation Society recently presented Enver with its Distinguished Service Award. He is currently serving as one of the Department Editors in the Supply Chain & Logistics focused issue of IISE Transactions. He has recently been elected as a Fellow of the Institute for Operations Research and Management Science (INFORMS).