

DRAFT PROGRAM

Lecture series consisting of five lectures on sustainable global supply chains, intermodal transport networks, and inter-organizational systems in logistics.

Lecture 1: Introduction Global Supply Chain Design

Lecturer: Rob Zuidwijk

Content:

This lecture introduces the basic notions of the design of global supply chain networks. It will elaborate on these notions based on a quantitative model. Also, a case study will be discussed in which a more complicated version of the model has been applied.

Preparation:

Reading 1: Tutorial global network design. <file in folder>

Reading 2: Arntzen, Bruce C., Gerald G. Brown, Terry P. Harrison and Linda L. Trafton (1995). Global Supply Chain Management at Digital Equipment Corporation. *Interfaces* 25(1), 69-93. <http://dx.doi.org/10.1287/inte.25.1.69>

Reading 3: Explanation weighted activity time from Arntzen et al. (1995). <file in folder>

Arntzen et al. (1995) reading guide:

You need not study the mathematical model in the paper in detail. Actually, the tutorial helps you to understand a simplified version of it, without going in to the mathematics. *The case questions can well be answered by studying the paper without the mathematical model specification in the appendix.*

Assignment due for this lecture:

Prepare the following questions on Arntzen et al. (1995) for discussion in class:

1. Discuss how DEC changed its supply chain strategy in response to the developments in the computer industry and market?
2. Explain which supply chain design decisions needed support?
3. How do trade regulations and agreements impact supply chain design?
4. Which performance measures are important to DEC apparently?
5. How is the GSCM used in the company?

Class discussion question:

6. To what extent does the Excel model described in the tutorial support the type of supply chain design decisions of DEC?

Assignment due after this lecture:

Based on the explanation during the lecture and the tutorial material, familiarize yourself with the global network design problem. You should understand the logic of the network design problem as explained. You may use the slide set with voice to review the modeling of the global network design problem. <file in folder>

Class activities:

1. Discussion (modeling of) global supply chain networks;
2. Class discussion Digital Equipment Corporation based on questions;
3. Workshop with quantitative model.

DRAFT PROGRAM

Learning objectives:

1. Explain basic notions global supply chain design;
2. Reflect on global supply chain design decisions while using a quantitative tool;
3. Explore global supply chain scenarios while using a quantitative tool.

Lecture 2: Intermodal Networks

Lecturer: Rob Zuidwijk

Content:

This lectures discusses the design, planning and execution of intermodal network services. It will elaborate on the role of ports therein, and it will explore the notion of Synchronomodality.

Preparation:

Reading 1: Teodor Gabriel Crainic, Kap Hwan Kim (2007). Intermodal Transportation, In: Cynthia Barnhart and Gilbert Laporte, Editor(s), Handbooks in Operations Research and Management Science, Elsevier, Volume 14: 467-537.

<http://www.sciencedirect.com/science/article/pii/S0927050706140086>

Reading 2: Albert Veenstra, Rob Zuidwijk and Eelco van Asperen (2012). The extended gate concept for container terminals: Expanding the notion of dry ports. Maritime Economics and Logistics 14: 14-32. <http://dx.doi.org/10.1057/mel.2011.15>

Reading 3: Behzad Behdani, Yun Fan, Bart Wiegmans, Rob Zuidwijk (2016). Multimodal schedule design for Synchronomodal freight transport systems. European Journal of Transport and Infrastructure Research 16(3): 424-444. <http://www.tbm.tudelft.nl/en/about-faculty/departments/engineering-systems-and-services/tlo-section/ejtir/back-issues/volume-16-2016/volume-16-issue-3/>

Class activities:

1. Review quantitative model of Lecture 1;
2. Discussion of intermodal and Synchronomodal transport networks;
3. Discussion of modeling approaches of intermodal and Synchronomodal networks.

Learning objectives:

1. Reflect on design, planning, and execution of intermodal and Synchronomodal network services;
2. Analyze intermodal and Synchronomodal networks by using modeling approaches.

Lecture 3: Interorganizational systems in Global Logistics

Lecturer: Rob Zuidwijk

Content:

This lecture introduces the basic concepts on information systems and the value of information. There will be some exercises for which you use Excel <file in folder>. Also, the basic notions of global trade and logistics management systems and their benefits will be explained.

Preparation:

Reading 1: Strong, D. M., Lee, Y. W., & Wang, R. Y. (1997). Data Quality in Context.

DRAFT PROGRAM

Communications of the ACM, 40(5): 103-110. <http://dx.doi.org/10.1145/253769.253804>

Reading 2: Warren Hausman, Hau Lee, Graham Napier, and Alex Thompson (2010). A process analysis of global trade management: An inductive approach. *Journal of Supply Chain Management* 46(2): 5-29. <http://dx.doi.org/10.1111/j.1745-493X.2010.03187.x>

Reading 3: Marshall van Alstyne, Geoffrey Parker, Sangeet Paul Choudary (2016). Pipelines, Platforms, and the New Rules of Strategy. *Harvard Business Review*, April 2016: 54-62. Available via library. Adapted version available via: <https://hbr.org/2016/04/pipelines-platforms-and-the-new-rules-of-strategy>

Reading 4: Danique Zoetewij, Tao Yue, and Rob Zuidwijk (2015). Open or Closed? Governance models of Port Community Systems. RSM Teaching Case. <file in folder>

Class activities:

1. Discussion quality and value of information;
2. Discussion and exercise session benefits analysis global trade and logistics management.

Learning objectives:

1. Explain the role of information systems in global trade and logistics;
2. Explain the benefits of information in global trade and supply chains;
3. Analyze the benefits of global trade and supply chains while using simple models.

Lecture 4: Sustainable Supply Chains

Lecturer: Rob Zuidwijk

Content:

This lecture focuses on the development of sustainable ports in their role as hub in global networks. Attention will be given to carbon emission initiatives and the role of ports in supply chain initiatives.

Preparation:

Reading 1: Edgar Blanco and Ken Cotrill (2014). Delivering on the Promise of Green Logistics. *MIT Sloan Management Review* 55(2): 1-6. <http://sloanreview.mit.edu/article/delivering-on-the-promise-of-green-logistics>

Reading 2: Anthony Craig, Edgar Blanco, Christopher Caplice (2013). Carbon Footprint of Supply Chains: A Scoping Study, MIT Center for Transportation & Logistics. <file in folder>

Learning objectives:

1. Reflect on the carbon footprint of global logistics and supply chains;
2. Analyze the role of supply chain collaboration in carbon reduction and allocation of footprint in the supply chain.

Lecture 5: Advanced Topics

Lecturer: Rob Zuidwijk

Content:

This lecture will discuss a number of advanced topics based on ongoing research projects.

DRAFT PROGRAM

Preparation:

Some readings to be decided.

Class activities:

Discussion on a number of project topics.

Learning objectives:

Discuss ongoing research while using various concepts from the materials offered in the course.