

LECTURE 01: INTRODUCTION TO COURSE

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OUTLINE

- 1 BEFORE CLASS: CONTACT INFORMATION, SYLLABUS, ROLES AND AGREEMENT
- 2 FUNDAMENTAL OF LOGISTICS & SUPPLY CHAIN MANAGEMENT
- 3 WHY DO ENGINEERS MUST CARE/LEARN ABOUT SUPPLY CHAIN MANAGEMENT?
- 4 IMPORTANT TERMINOLOGY IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT

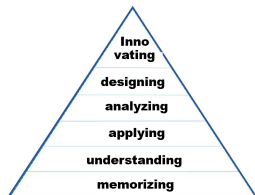
General Reference: [?] [?] [?] [?]

2184408 SYLLABUS: BEFORE WE START

COURSE DESCRIPTION

Definition of supply chain; **coordination difficulties** ; **pitfalls and opportunities in SCM**; **inventory/ service level tradeoffs**; performance measurement and incentive; extensive SCM; mass customization; supplier management; **design and redesign of products and process for SCM** ; analytical tools; **industrial applications**; current industry initiatives.

OBJECTIVE



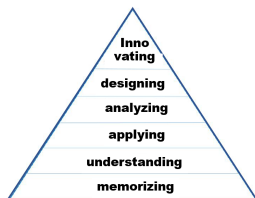
- Understanding concepts and issues in SCM, including **trade-off, coordination, and recent developments** [a]
- Noticing concurrent SCM topics and issues occurred in a **business** [g]
- Applying **analytical skill/technique** to improve logistic and SC [b]

2104507 SYLLABUS: BEFORE WE START

COURSE DESCRIPTION

Definition of logistics and SCM; **distribution network design** ; **distribution strategies**; production-inventory models; transportation design; **coordination** and **information technology**; **international issues**

OBJECTIVE



- Aware of concepts and issues in logistics and SCM, i.e. **trade-off & recent development** [a]
- Applying **analytical skill/technique** to improve logistic and SCM [b]
- Analyzing problems in occurred in a **case studies** and suggest reasonable improvements [d]

CONTACT INFORMATION

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GRADING POLICY

MARKING:

Item	Option 1	Option 2
• Homework	2 × ✓	2 × avail.
• Case Study	2 × ✓	1 × ✓
• Participation or Field Trip Report or Quiz	✓	
• Midterm exam	✓	✓
• Final exam		✓

Note: see OKC proposal and its percentage in myCourseVille

GRADING AND SCORES

85 and above: final grade is **definitely** 'A'

between 50 and 85: A, B⁺, B, C⁺, ... , D

50 and below: final grade is **possibly** 'F'

CLASS RULES AND AGREEMENTS

- No point for class attendance
 - Don't interrupt others
 - Be responsible, esp. meeting time and assignment
 - If 25+% students has conflict → MS Team online
 - 10 minutes before class to review & participate
 - Participate during class; this is **elective level** course
 - Participate points will be **awarded in group** or **whole class**
-
- Exams are designed to test student **basic knowledge** of the course:
 - in-class workshop
 - unmarked homework
 - presentation of case study

CODE OF HONORS

CHATGPT POLICY: AI = **tools** + EMERGING SKILL

warning: do not trust AI (inherently bias); user must be **responsible**; any use must be clarified

- Education must do with ethic standards and social responsibilities
- Trust is integral and essential parts of learning process
- Self-discipline is necessity for development
- Dishonesty hurts the entire community (student, employer, TA)

adapted from: Georgia Institute of Technology –The Honor Code

Any violation to code of honors will **severely punished**, especially cheating and plagiarism

TEXTBOOK AND REFERENCES

Textbook

- [?] Chopra, S. and Meindl, P. 2001. *Supply chain management: Strategy, Planning and Operation*. Prentice Hall. New Jersey.
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Misc.

- [?] Goetschalckx, M. 2011. *Supply Chain Engineering*, Springer, Boston
- [?] Ballou, R. 2004. *Business Logistics/ Supply Chain Management*. Prentice Hall. New Jersey.
- [?] Jacob, R. and Chase, R. 2010. *Operation and Supply Management: The Core*. McGraw-Hill, New York.

WHAT DO YOU KNOW ABOUT SCM?

Supply Chain Management (SCM) is:

- recent/fresh and well paid area of study
- around us and the dynamic topic
- strategic importance and matter to processes

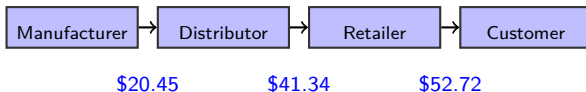
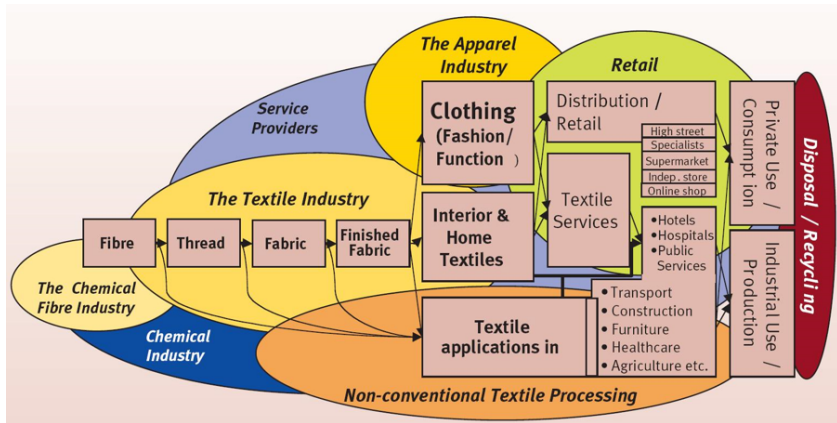
SCM and I

- How does SCM relate to your living and fields of study?
- How does SCM impacts cost and availability?

Mis-Concept?

- SCM \nrightarrow Cost reduction & Investment in IT
- SCM is for modern trade retailers & large manufacturers
- Logistics \neq Supply Chain \neq Value Chain

EXAMPLE OF SCM: SHIRTS SUPPLY CHAIN



WHAT IS SUPPLY CHAIN?

Flows of **products** (service), **funds** and **information** from **raw materials** to **end consumers**

	Upstream	Downstream
Materials:	return, repair, disposal	RM, WIP, FG
Information:	search history, promotion	capacity, sales, delivery
Funds/Values:	consignment, barter, platform	credit, payment

STILL HESITATE, 2104507 LOG & SCM ANSWERS

- Why and how do we manufacture & move products/services → logistics?
- How to understand, analyze, and improve the logistics of **company**?
- What are **better ways** and concurrent trends in SCM ?

WHY CARE? WHAT DO YOU THINK ABOUT SCM?

Always needs for a better way to **moving/transforming** products/services [money/info] from raw materials/ideas to consumers

Pg:Trade

IMPORTANCE OF SUPPLY CHAIN

- SCM covers every **products/ service** and impacts **cost** and **availability**
- SCM is important to **strategy** and **value creation**
- SCM involves **many parties** and becomes ever increasing **complex**

WHY SCM INTERESTED?

- **Power:** globalization, decoupling, **competition**
- **Facet:** connected many topics, conflicting objective, **technology**
- **Dynamic:** strategy-operation, perspective, X-change practice

Pg:Ranking

Pg:Integration

Pg:Eval factor

REASONS FOR GLOBALIZATION

[**IE**]

Local consumption			
Consumer in	Suit	Software	Total
Thailand	\$250	\$500	\$750
USA	\$500	\$200	\$700

Global consumption			
Consumer in	Suit	Software	Total
Thailand	\$250	\$250	\$500
USA	\$300	\$200	\$500

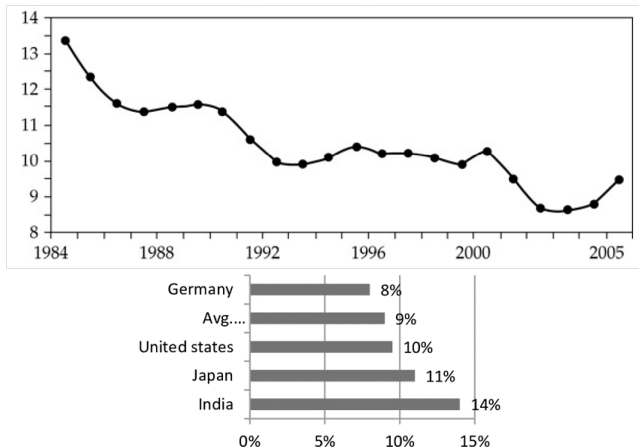
note: transportation cost is \$50

Is this good idea? Why not?

- Political pressure e.g., local sourcing, growing industry
- Inefficient market e.g., under crisis

LOGISTICS/SCM AND ECONOMY?

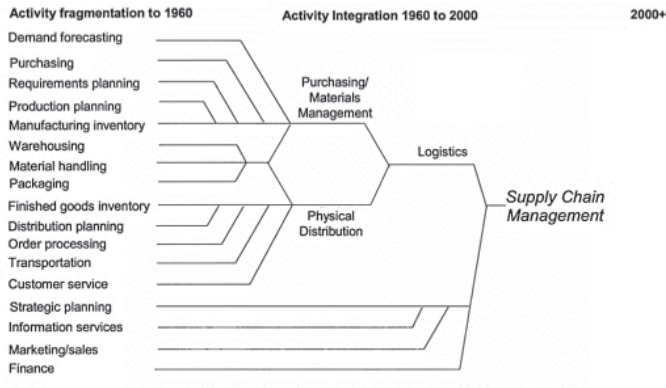
[**IE**]



source: Designing and managing the supply chain. 2003 [?]
Martin Christopher, 2011 [?]

IS SUPPLY CHAIN NEW 'THING'? WHY IE?

[**IE**]



source: Center for Supply Chain Research, Penn State University [?]

Pg:Why care

DISCUSSING Q1: BACKGROUND CHECK

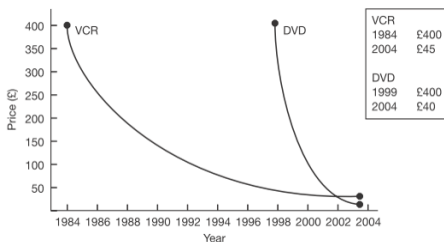
[**IE**]

- What are factors that fuels SCM development?
- Which **companies/industries** do excel in supply chain?
 - Why do they need to focus on SCM (any pressure) ?
 - How do they achieve (operation, technology, management, strategy)?
 - What are **activities** that they do focus
- What do these companies/industries have in common?

Pg. Why care

FACTORS IN SC EVALUATION

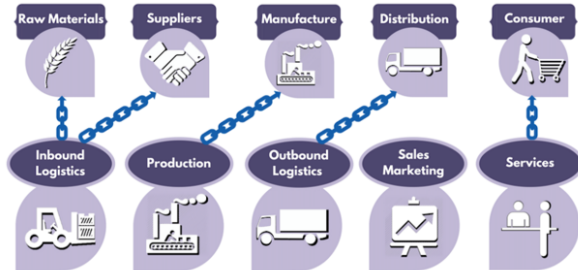
[**IE**]



source: Martin Christopher, 2011 [?]

- **Compete through time:** shorten LC (DVD), low inventory, but volatile
- **Product design:** format change (songs)
- **Make/Buy/Outsource:** core (SCG1997), diversify (PepsiCo), EcoSystem (iPhone)
- **Trade/Capital/Global:** economic growth, regulation (Sihanouk-ville)
- **Information:** ERP, service, traceability (fake pharma)
- **Relationship:** trust, sourcing, replenishment (Toy'R Us)

WHAT NEW IN SCM?



SUPPLY CHAIN MANAGEMENT VS MATERIAL CONTROL MANAGEMENT

- SC is **single entity**, not **zero sum** game
- SC requires **strategic decision** making and requires steady & precise **processes**
- SC views **inventory** as **last resource**
- SC needs **integration**, not interfacing

SCM TODAY: SEARCHING FOR VALUE

- **Raise of specialist:** assets and knowledge/ differentiate/ outsourcing (DHL)
- **Raise of Modern Trade:** large retailers dictated customer (THD/WMT)
- **Fragmented Supply Chain:** individual goals, no resilient (Flood2011, Covid2019)
- **Computerized Operation:** data collection (LCD price, GrabFood), big data,

HOW TO CREATE VALUE INTO SUPPLY CHAIN

- Minimize **total costs** → Efficiency
- Maximize **customer satisfaction** → Responsiveness/ Service
- Create long lasting **recognition** → Differentiation + Sustaining + Resilient

ISSUES IN LSCM

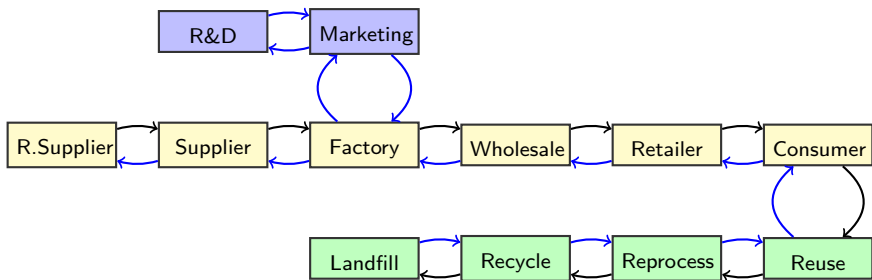
- **Revenue Mgt– American Airline:** budgeted leisure traveller VS on-call consultant
- **OmniChannel– Home Depot:** cross-dock at transit facility VS growth of online sales
- **Postponement– HP:** manufacturing economy of scale VS flexibility of local components
- **Sourcing– Zara:** cheap manufacturer in Asia VS sophisticated customer in Europe
- **Core Business– Boeing 787 :** quality & technical designer VS quick & cheap assembler
- **Risk Mgt– KFC_{UK} VS DHL:** centralized DC when \exists accidents \rightarrow cascading effects

SCM FUTURE



source: "Supply Chain Priorities in the Near Future" www.apqc.org
 "Technological Innovations in Logistics and Supply Chain Industry" www.apogaeis.com

LOGISTICS/ SUPPLY CHAIN/ VALUE CHAIN



legend



TERMINOLOGY

● Logistics

- “Time related positioning of **resources**” (Man, Machine, Materials, Money)
- **Military logistics**: can food, computer, petrolatum, tanker, GPS
- **Social logistics**: taxation, transportation infrastructure, law
- **Business logistics**: company related

● Supply Chain

- “The management of material out of the ground and back into it’
- **Inbound**: logistic of **raw materials**
- **Outbound**: logistic of **finished goods**
- Concurrent term: Retailer business, Distribution network

● Reverse Supply Chain

- Logistic of **used products** from customer to landfill, including re-use/re-cycle

● Value Chain

- Extension of supply Chain includes product/process design and recycle processes

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