

# LECTURE 05: GLOBAL SUPPLY CHAIN AND OUTSOURCING

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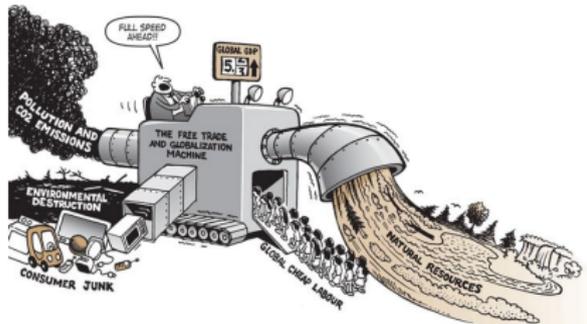
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**General Reference:** [JC10] [Bal07] [CM07] [Goe11]

# OUTLINE

- 1 IMPORTANCE OF GLOBAL LOGISTIC AND GLOBALIZATION
- 2 PURCHASING OR SOURING ITEMS
- 3 OUTSOURCING AND SUPPLY CHAIN MANAGEMENT
- 4 SUPPLY CHAIN RISK: MANAGEMENT OR RESILIENCE
- 5 CASE STUDIES ON GLOBAL SUPPLY AND SC DISRUPTION
  - Boeing 787 Story
  - US-China Trade War

# WHAT YOU KNOW ABOUT GLOBAL TRADE?



- **Motivation:** resources, labor, law, quota, markets, technology
- **Criticism:** destroy SME, environment, neo-colonization,

# GLOBAL TRADE AND GLOBALIZATION

- Network of VA activities of goods and services spanning many countries
- For specialization → **growing revenues** and **reducing costs**
- Opportunities includes **risks** (e.g., demand, prices, exchange rates, and market)

## CHARACTERISTICS OF GLOBAL TRADE

- **Borderless:** products (milk), brands, service (TH medical), money
- **Cluster:** cluster of industry & markets → organization (WTO, FTA)
- **Deregulation:** transportation, steel, machine, economic zone (ASIAN+4)
- **Barrier:** ESG as tool (seafood, CO<sub>2</sub>, Trump's tariff, CHIP Act)

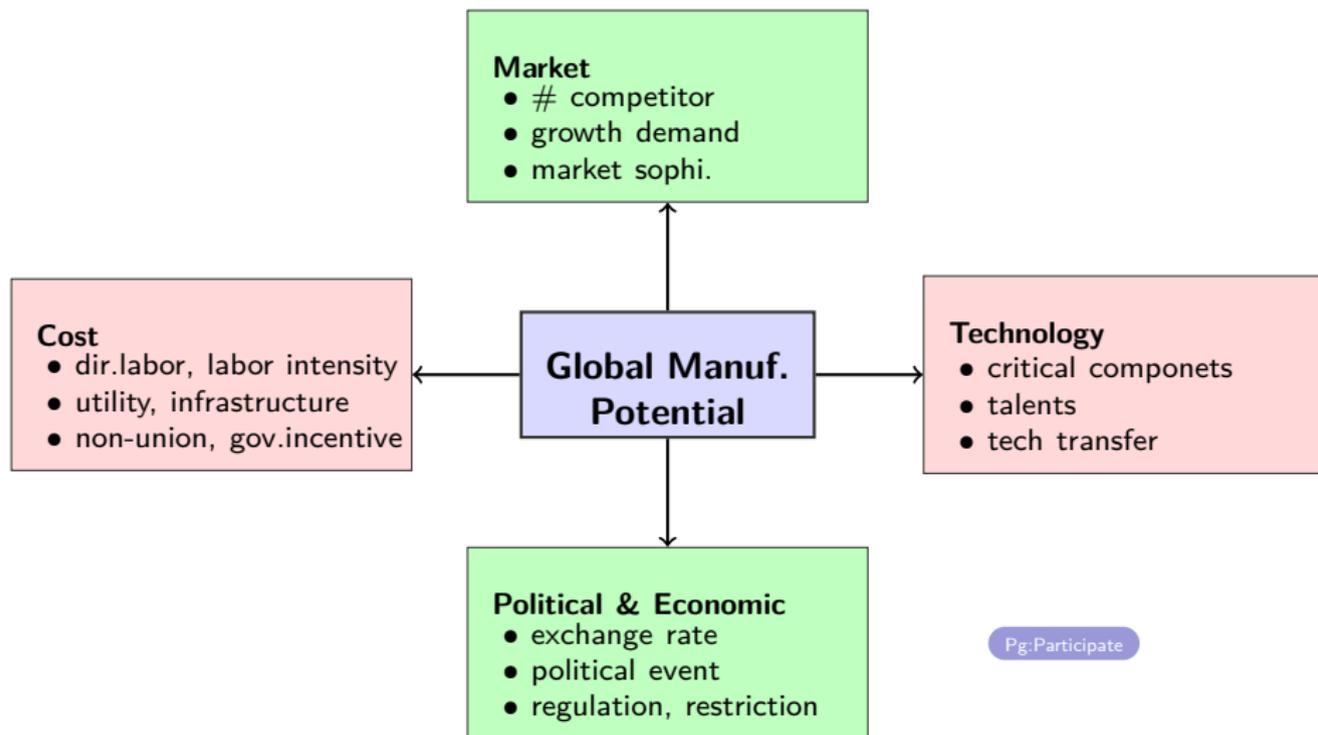
# TRIVIAL OF GLOBAL TRADE

- **History:** silk road, anti-missionary, colonization, Suez Canal (EGY), Panama Cannel (PAN)
- **Transportation Mode:** 95% Maritime

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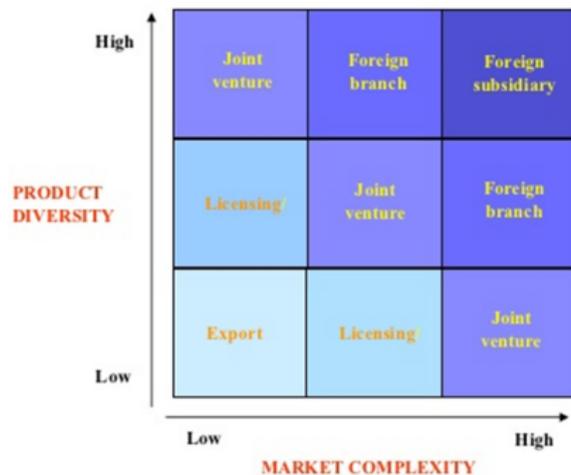
- **Offshore:** moving a firm's activities to different countries
- **Outsourcing:** moving a firm's internal activities to outside providers
  - **Shipper:** owner of goods or service
  - **Carrier/Shipping Agent:** deliver of goods or service
  - **Consignee:** receiver of goods or service
  - **Third Party Logistic (3PL):** (e.g., UPS, Xiva (old TNT), FedEx)
  - **Forth Party Logistic (4PL):** (e.g., Li & Fung)

# GLOBAL MANUFACTURING POTENTIAL



# PARTICIPATION STRATEGY

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- **Exporting:** selling of products **manufactured in one country** to other countries
- **Licensing:** obtaining **right to manufacture** products for specific countries
- **JV:** partnering with **local companies** to penetrate market, proprietary knowledge
- **Foreign branch:** **directly operating** in specific countries
- **Foreign Subsidiary:** **directly investing** to manufacture and distribute product

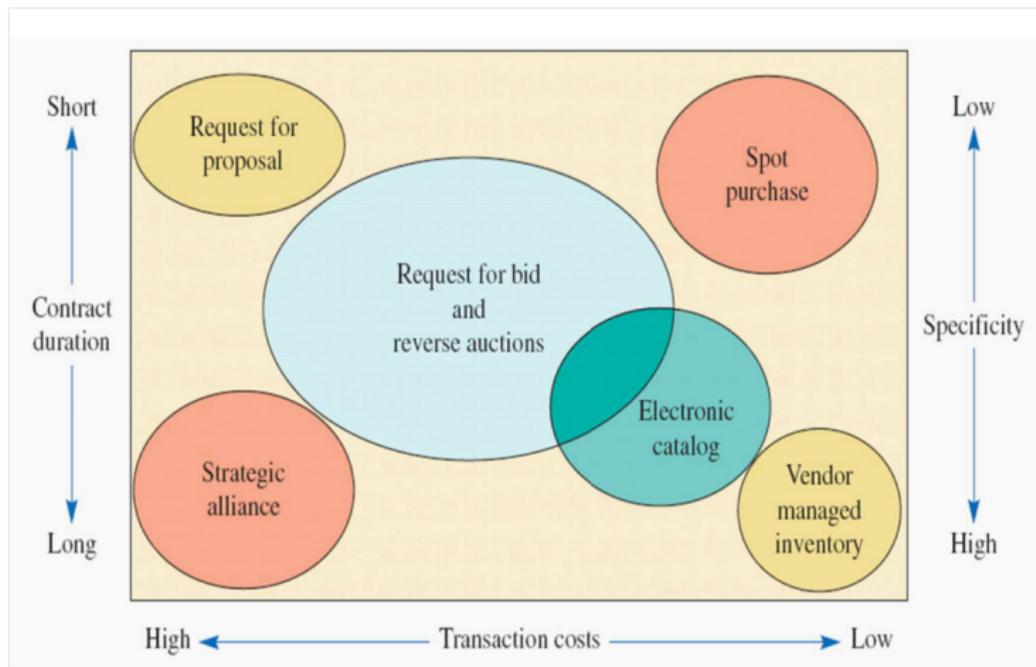
# CHALLENGES IN GLOBAL TRADE

- **More Risk:** geo-politic, shorten life cycle, disruption (Robot, CISCO)
- **Dependence:** demand-supply, orientation-segmentation, technology
- **Cost-optimizing:** too lean, subcontracted manufacturing,

## SURVIVING GLOBAL TRADE CHALLENGE

- **Collaboration:** resource sharing, synergy, risk sharing, innovation, closed-tight partners
- **Divergent product portfolio:** cover all range (vertical and horizontal)
- **Blue Ocean strategy:** avoid competition, find new market or spin-off
- **World Class standard:** think global and ahead (trade=two-way street)

# HOW A COMPANY PURCHASE COMPONENT?



source: Chase and Jacob. 2011.

Transaction cost VS Contract length

# SOURING OPTIONS

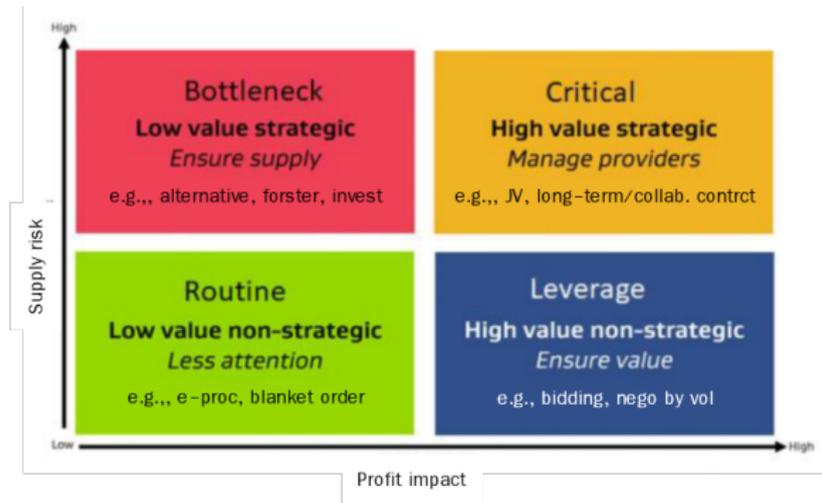
- **Spot Purchasing:** common and standardized products
- **Request for proposal:** specialized and customized products, few suppliers; required proposal and negotiation
- **Request for bidding & Auction:** similar to 'Request for proposal' but no proposal or less negotiation
- **Strategic Alliance:** long-term trade partner
- **Electronic catalog:** not-so common products
- **Vender Management Inventory:** supplier monitors and ships products

Do you take **Value** and **Risk** (# manuf.) into account?

Pg:Sourcing

# KRALJIC'S MATRIX: SOURCING STRATEGY

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## CONCEPT

- **Idea:** How to classify and manage your supplier
- **Matrix:** future attractiveness VS spending values of suppliers
- **Application:** replace *routine*, negotiate *leverage*, foster *the rest*

# WHAT DO YOU SHOULD AWARE?

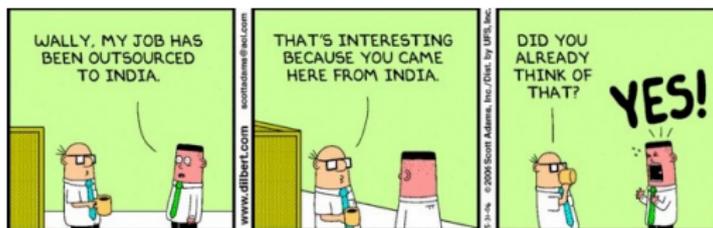


- **Money:** x-rate, payment term, credit
- **Transport:** resilience, inco-term, LT
- **Social:** power, culture, Communication
- **Global Risk:** political, regulation, disruption
- **Technology:** E-business, cyber-security, IP
- **Labor:** skill, qty, migration, wage

# OVERVIEW OF OUTSOURCING

## THINK POINTS

- What is the difference between **outsourcing** and **supply**
- How to distinguish **outsourcing** and **subcontracting**
- What is the connection between **outsourcing** and **vertical integration**



## ORIGINAL OF OUTSOURCING

- **Before 1990s:** no essential/ administrative functions, e.g. payroll, IT, HR
- **1990s-Present:** cover every functions, e.g., make, delivery, or product design

# STRATEGIC OUTSOURCING

## OUTSOURCING

capability and process to obtain supply of an external product/service that has strategic significance. As a company wants to:

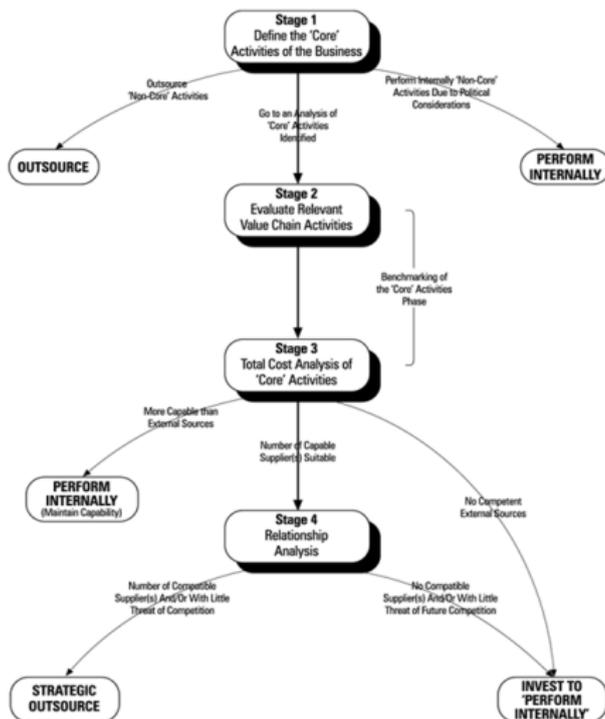
- focus on **core competency**
- leverage **skill**, technology, and **capital**

## POPULAR OUTSOURCED FUNCTIONS

- **Resource intensive:** high labour (HMPRO) or capital costs
- **Changed in technology/ market/ capacity:** photovoltaic (AMD, memory)
- **Require specialist:** accounting/ consulting/ project/ connection/ IT
- **Relatively discrete:** isolated or standardised (HR) or security

# DECIDE WHAT SHOULD BE OUTSOURCE

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## OUTSOURCE WHEN

non-core activities and  
little threat to competition

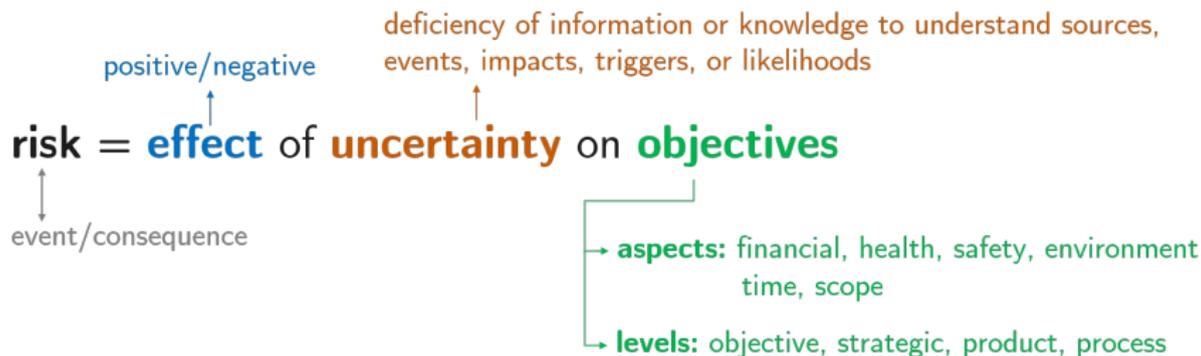
## DO-IT, OURSELVES WHEN

core activities and more  
capable

## SPIN-OFF WHEN

no external or  
non-competitive sources

# WHAT IS RISKS? SUPPLY CHAIN RISK



sources: ISO 31000

**SUPPLY CHAIN RISK:** **potential** for disruptions or failures within a supply chain that **negative impacts** operations, reputation, and financial

**RISK MANAGEMENT:**

$$\underbrace{\text{sources \& events}}_{\text{risk}} = \text{loss} \times \text{likelihood}$$

# CLASSIFICATION OF SUPPLY CHAIN RISKS

- **Demand-Supply:** issues on supplier or fluctuations of demands, e.g., bankruptcy, capacity constraints, preferences, forecasting
- **Operational & Logistics :** **internal** and transportation **processes** that fail or inefficient, e.g. M/C failures, human error, port delay,
- **Financial:** financial instability affecting cost structure e.g., fluctuations in X-rate, oil prices
- **Environmental & Geo-Political:** **external** or political events that beyond direct control, e.g., natural disasters, COVID
- **Cyber-security:** IT-related risks, e.g., hacking, data breaches

## IMPORTANT QUESTIONS:

- Why risk management is critical for the stability of supply chains ?
- Can we manage all risks?

# EXAMPLES AND IMPORTANCE OF RISK MANAGEMENT

- **Redundancy:** extra inventories or capacities more than 'typical' demands
- **Legal Instrument:** transferring responsibility (insurance, term-of-uses) or capping liability (bank deposit)
- **Screening Condition:** checking trigger/historical/information (health check before hiring, silence period)
- **Governing Body:** professional organization that promotes standard practice and ethics (mal-practice) → external independent risk committee

## WHY DO WE NEED RISK MANAGEMENT?

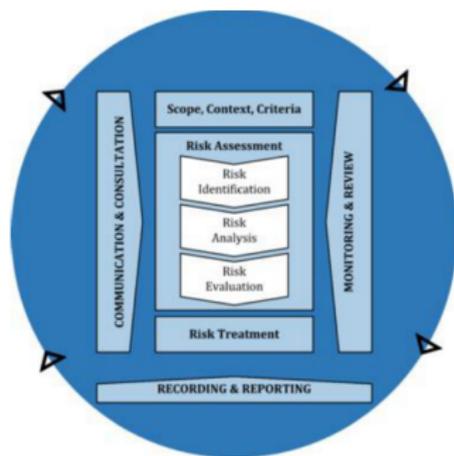
RISK MGT = **iterative process** that aligns strategy, achieves objective, makes informed decision

RISK MGT = **good governance** and **leadership** → system improvement & aware **sources of risk**

RISK MGT ∈ external factors, internal factors (human behavior, culture), and their combination (suppliers)

# RISK MANAGEMENT PROCESS

*systematic process of identifying, analyzing, and responding to project risk*

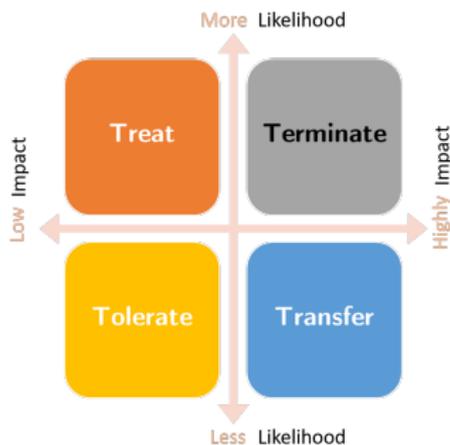


- **Communication and Consultation:** understand risk by providing **timely, matter, accurate** and **clear** info → **informed decision**
- **Scope:** Lv/ incentive/ involvement of stakeholder → **threshold, time, resource traceability**
- **Context:** interaction between internal and external → **category**
- **Criteria** amount and type based on values → **rubric**

- **Risk Assessment:** systematic, iterative, collaborative **process** of **risk management**
- **Monitoring and Review:** monitoring/periodic reviewing **process** and its **outcomes**
- **Recording and Reporting:** documenting risks

sources: ISO 31000

# RISK TREATMENT STRATEGY



- **Terminate:** avoid risk by **not engage in activity** or remove **risk source**
- **Treat:** reduce risks by change likelihood, consequence, or process
- **Transfer:** sharing losses by contracts or insurance
- **Tolerate/Take:** retain risk by **informed decisions** ⇒ RESILIENCE

# SUPPLY CHAIN RESILIENCE



- **What:** avoid risk by **not engage in activity**, remove **risk sources**, or **quickly response** to disruption
- **How:** Resistance VS Recovery

- **Redundancy:** more suppliers-facilities-inventory-capacities → **more money**
- **Flexibility:** common parts, rent capacity, near-shoring → **more channel**
- **Ecosystem:** collaborate & communicate with partners → **more alignment**
- **Technology:** digital tools (AI, IoT) to predict and respond → **more visibility**
- **Scenario:** board assessment, train, educate, brainstorm events → **more plan**

sources: Richard Wilding 2011

# BOEING 787: DREAMING PROPOSAL

## Before 'dreamliner'

- **Boeing:** two core business units, largest aircraft manufacturer
- **Background:** subsidiary war between **Boeing** VS **Airbus**, merge with McDonnell Douglas
- **Boom-and-Bust:** excess **capacity**(all in-house) & **discount price** in 1997-1998

## Proposal:

- **Demands:** take all → **club fluctuated** demands
- **Production:** in-house → **global collaboration** & outsource 'risky' parts
- **Attitude:** do-it-all → **design** & **assemble**
- **Dreamliner:** design, procurement & supply chain using 747
- **Worries:** partner selection, common suppliers

# BOEING 787: NIGHTMARISH OUTCOMES

## Reality: three years of delay

- **Engineering:** composite materials, modular assembly, re-design, overweight
- **Supply chain:** fastener **shortage**, expensive investment, flight-control software
- **Supplier:** 50 suppliers (28 non-US), communication (document), tier one coordination, control
- **Capacity:** additional assemble at Charleston, Vought takeover

## Lesson learnt

- **Make or Buy:** risks of outsourcing in new design
- **Innovative:**

## CASE STUDY: US-CHINA TRADE WAR

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- **BG:** no trade benefit for US. Others want US for **security**; CHN for **economics** (JPN experience).
- **Why:** keep tech advantage, protect farmers, access to CHN market
- **Tariff:** Deficit reduced, but VET, MEX, THA increase
- **Perfect Timing:** COVID worsened by fail implementation, more subsidies, intellectual property. (TESLA, APPLE)
- **Build-In:** CHN as competitor. In Biden, no improvement, more transparent, more ally, clear redline.

Who involve/win in this conflict: economically, politically, socially, military?

# CONCURRENT TOPICS IN GLOBAL LOGISTICS

- **After-COVID:** eCommerce, work-from-home → universal basic income/ population
- **Geo-Politic:** Decoupling (TicTok), Trading-Security block,
- **Digital Revolution:** data VS security (cable), automation, AI
- **Climate Change & ESG:** tracing & accounting, consensus VS price (coffee)
- **Capacity & Infrastructure:** logistics-financial hub, green revolution (data center),

Future of global logistics is uncertain, **disruption** and **re-alignment** are ahead

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