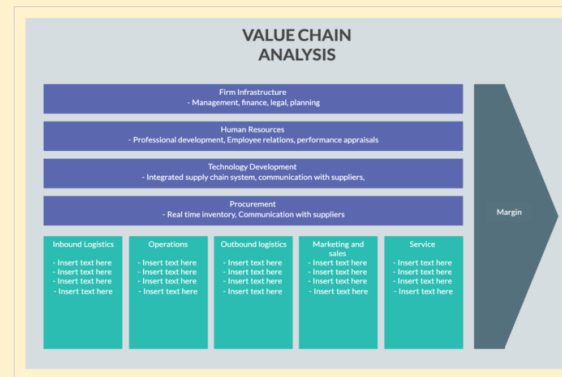
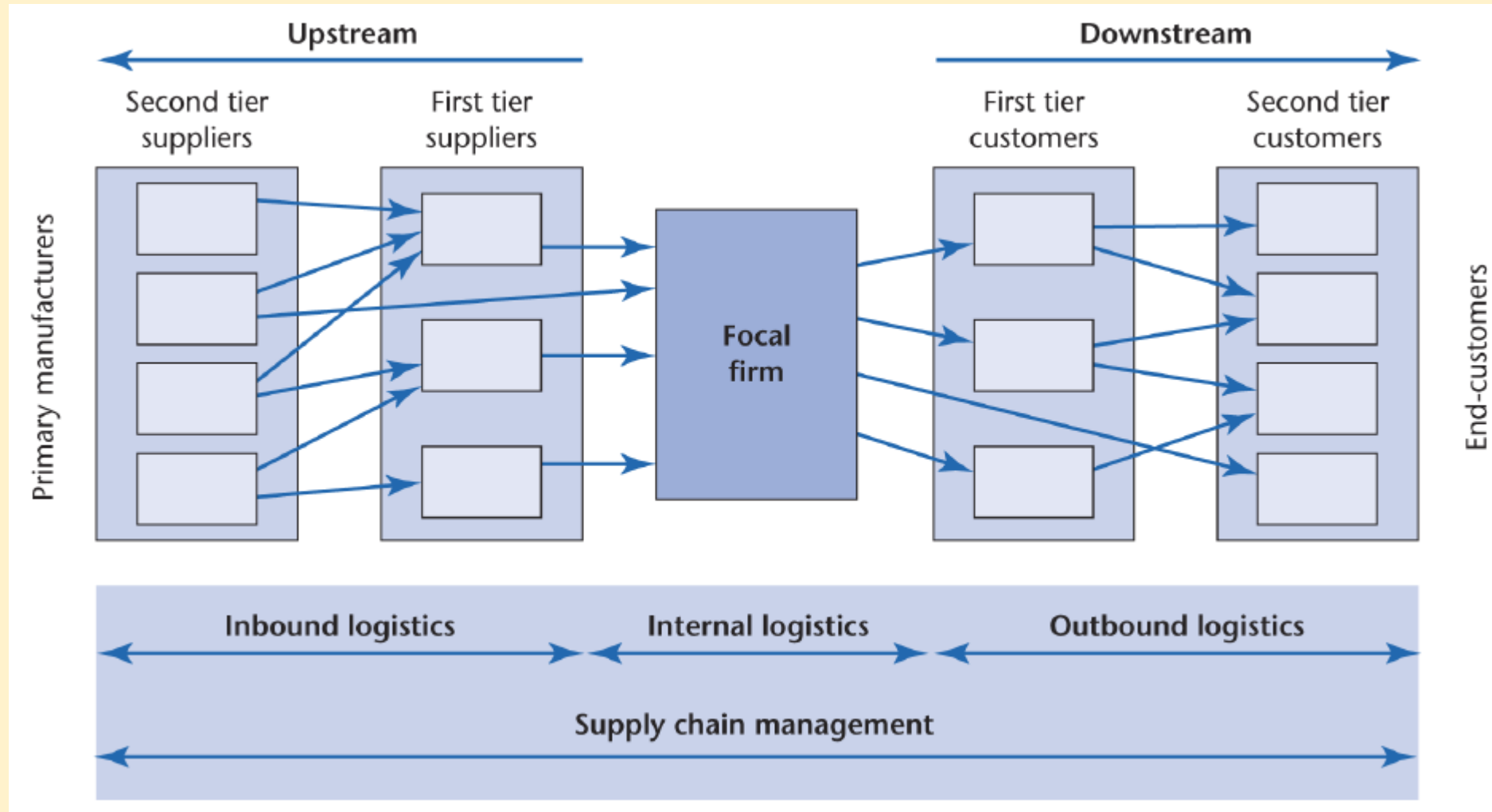
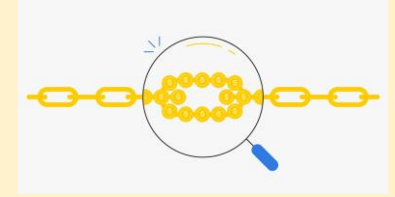


# Lecture 2- SC Competitive Advantage and Capabilities



Recap

# Supply Chains are only as strong as the weakest link



# Customer Value Ratio

- Christopher (2016) cites the Customer Value ratio (Johansson et al, 1993).
- Customer Value =

The functionality, performance and technical specification of the offer.

The availability, support and commitment provided to the customer.

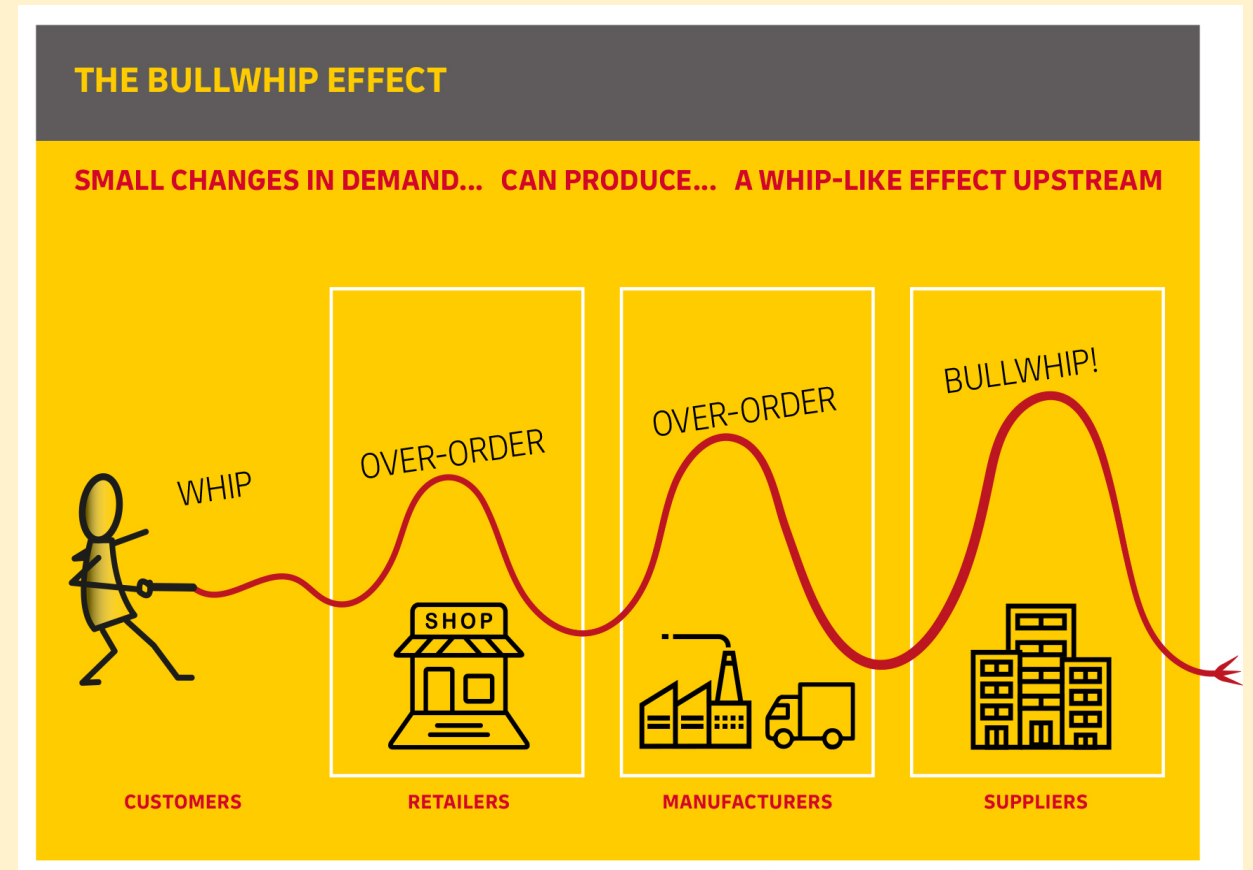
$$\frac{\text{Quality} \times \text{Service}}{\text{Cost} \times \text{Time}}$$

The customer's transaction costs including price and lifecycle costs.

The time taken to respond to customer requirements.

# Global Supply Chain Disruptions and Inflation During the COVID-19 Pandemic

- Due to the global nature of supply chains, even a relatively small demand shock to a critical sector can propagate into a larger supply/demand disruption.
- This mismatch between supply and demand puts upward pressure on prices

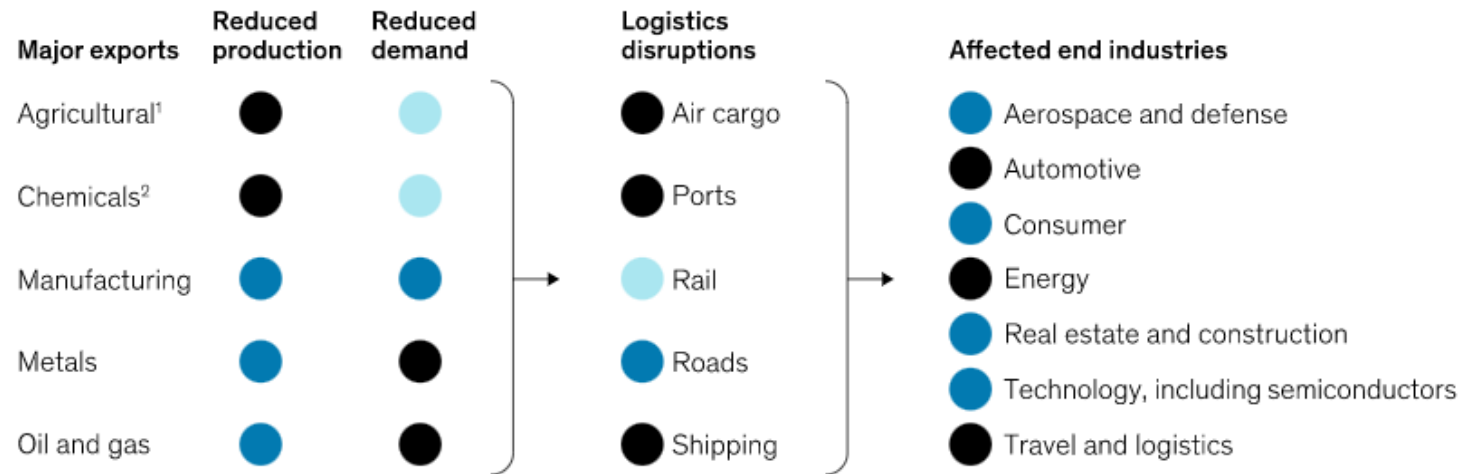


# How Ukraine war may impact supply chains

The Ukraine–Russia conflict is having a major impact on supply chains in five key sectors.

Major exports and potential impacts in Ukraine and Russia

- Large impact in most scenarios
- Impact in specific scenarios or regions
- Low impact in most scenarios



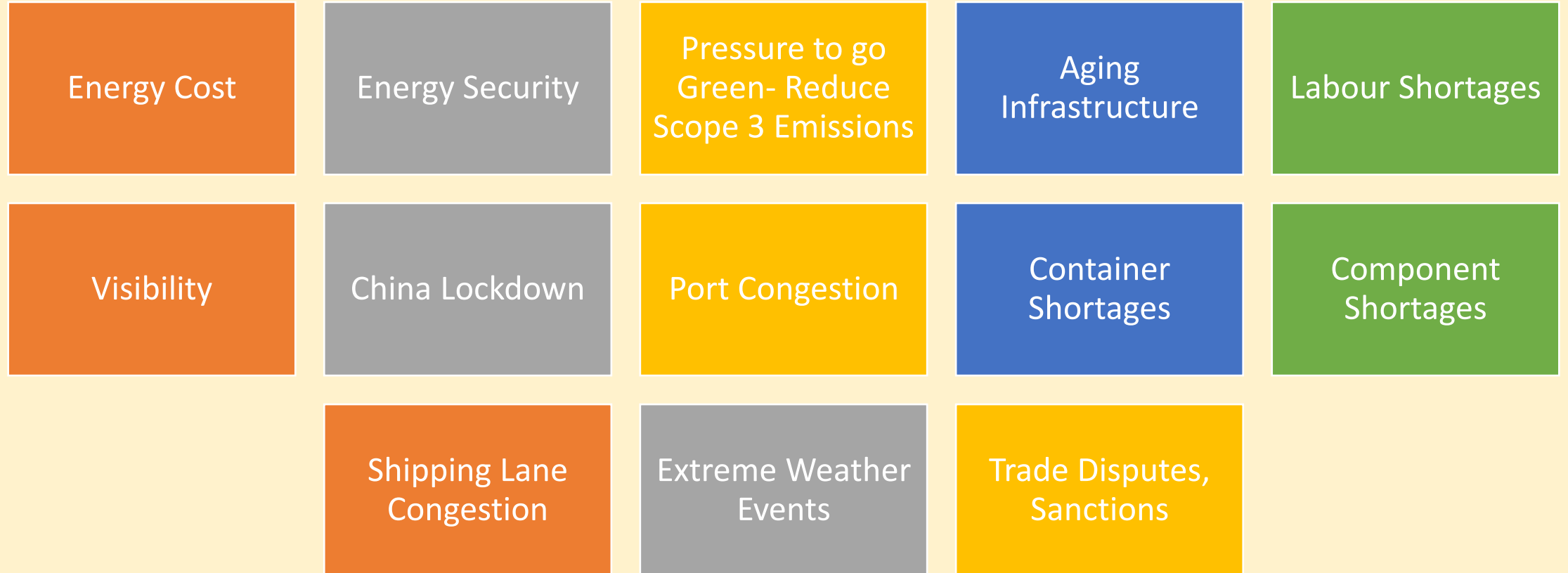
<sup>1</sup>Only agricultural production, ie, crops.

<sup>2</sup>Includes agricultural chemicals and fertilizer inputs.

Source: McKinsey Resilient Operations Center

McKinsey  
& Company

# Supply Chain Disruptors into 2023



[Scope 3 Emissions](#)

# Activity- Rank the Supply Chain Disruptors 2023

- Go to <https://www.menti.com/inj1i4odto>
- Rank disruptors 1<sup>st</sup> to 5<sup>th</sup>

Pressure to go Green

Labour, Container  
Shortages, Port  
Congestion

Component/Inventory  
Shortages

Energy Cost and Energy  
Security

Extreme Weather Events



# Recovery time

## Recovery time by scenario:

supply chain disruptions could take up to 24 months to ease in a protracted scenario, versus approximately 12 months in the ongoing impact scenario.

### Disruption

#### Logistics disruption



#### Materials shortages



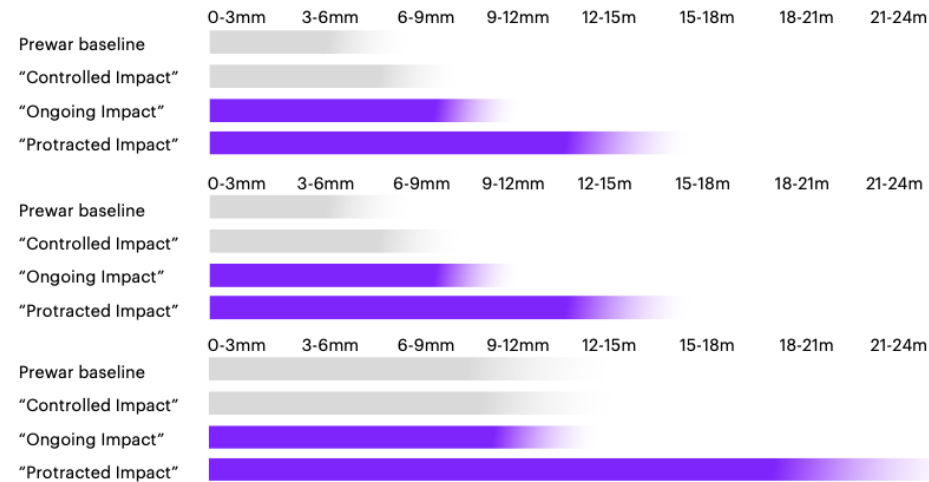
#### Energy prices



#### Labour and skill shortages



### Recovery time



- Labor and skills shortages will remain a long-term, structural issue for European economies across all scenarios.
- That said, these labor shortages will be rather less acute over the next 18 months in the "protracted impact" scenario, given the weaker outlook for economic activity.

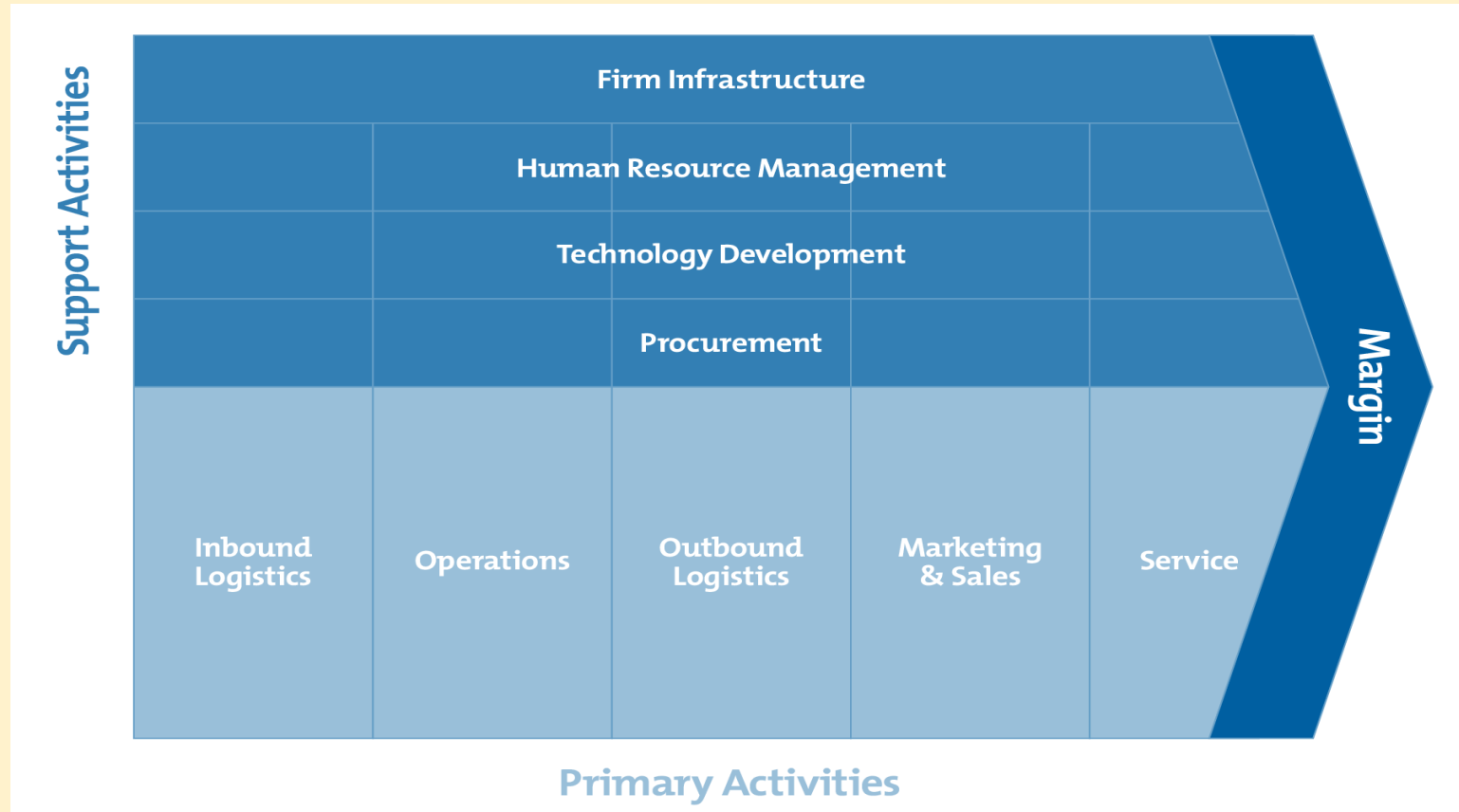


The supply chain becomes the value chain

# Porter, M.E., 1985 Competitive Advantage, The Free Press

- “Competitive advantage cannot be understood by looking at a firm as a whole
- It stems from the many discrete activities a firm performs in designing, producing, marketing, delivering, and supporting its product.
- Each of these activities can contribute to a firm’s relative cost position and create a basis for differentiation”

# Value Chain Model



Competitive advantage is derived from the way in which firms organize and perform these activities within the value chain.

# Implication of Porter's Value Chain Thesis

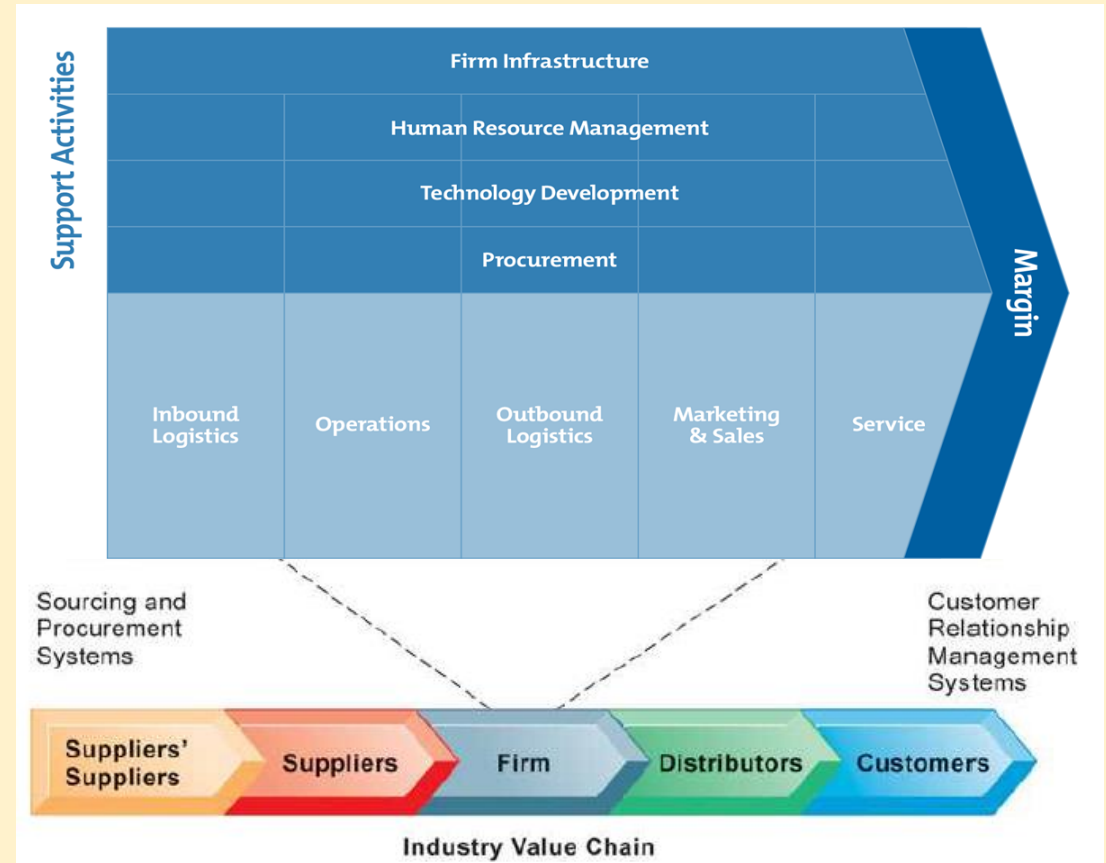
- Organizations should look at each activity in their value chain
- Assess whether they have a real competitive advantage in the activity.
- If they do not, then:
  - consider **outsourcing** that activity to a partner who can **provide that cost or value advantage**
- **Discussion:**
  - Does outsourcing adds to the complexity of the supply chain?

# Effects of Outsourcing

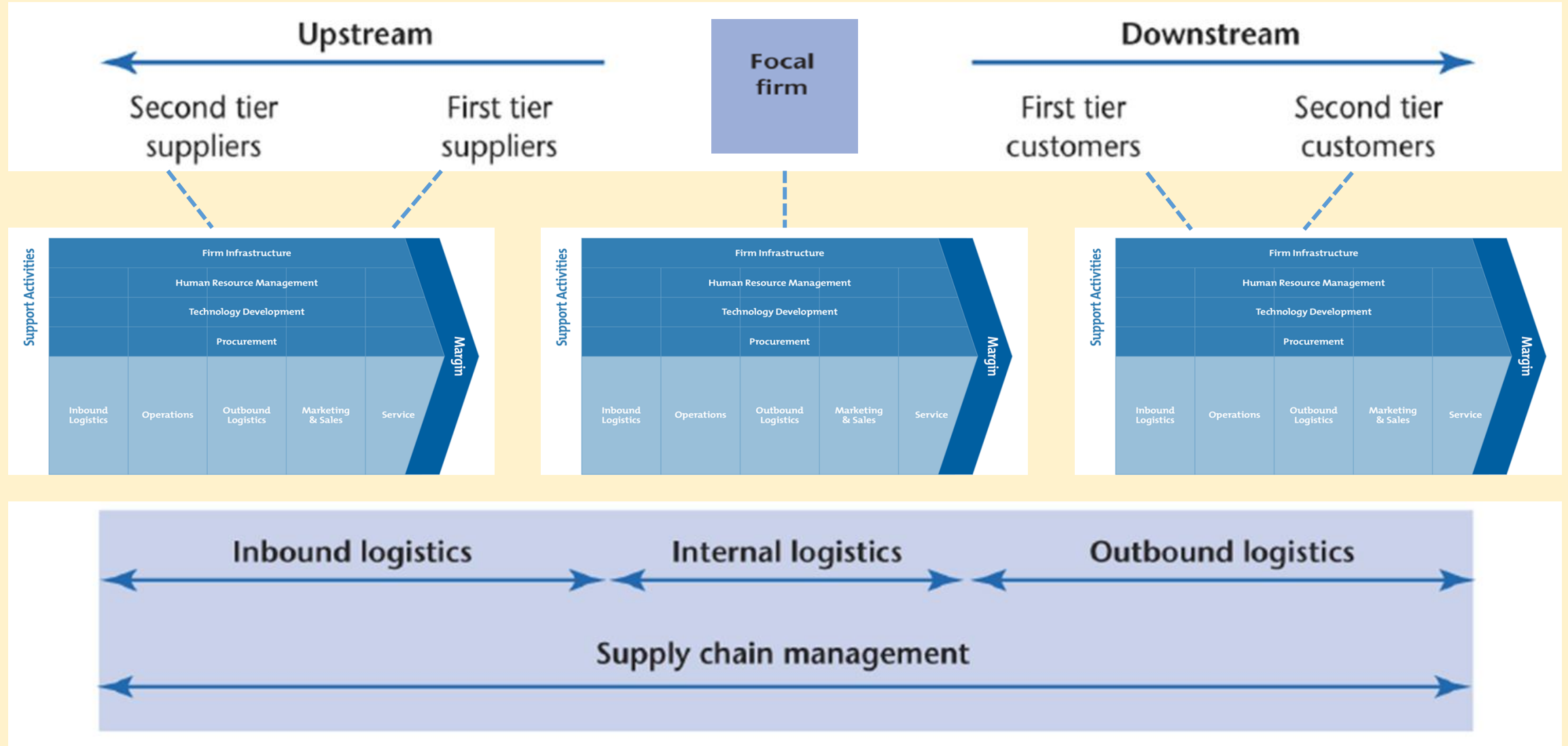
- The **effect of outsourcing is to extend the value chain** beyond the boundaries of the business.
- In other words, **the supply chain becomes the value chain.**
- Value (and cost) is not just created by the focal firm in a network, but by all the entities that connect to each other.
- This 'extended enterprise', as some have termed it, becomes the vehicle through which competitive advantage is gained – or lost.

# Extending the Value Chain: The Value Web

- The firm's value chain is linked to the value chains of its suppliers, distributors and customers
- This 'extended enterprise', becomes the vehicle through which competitive advantage is gained – or lost

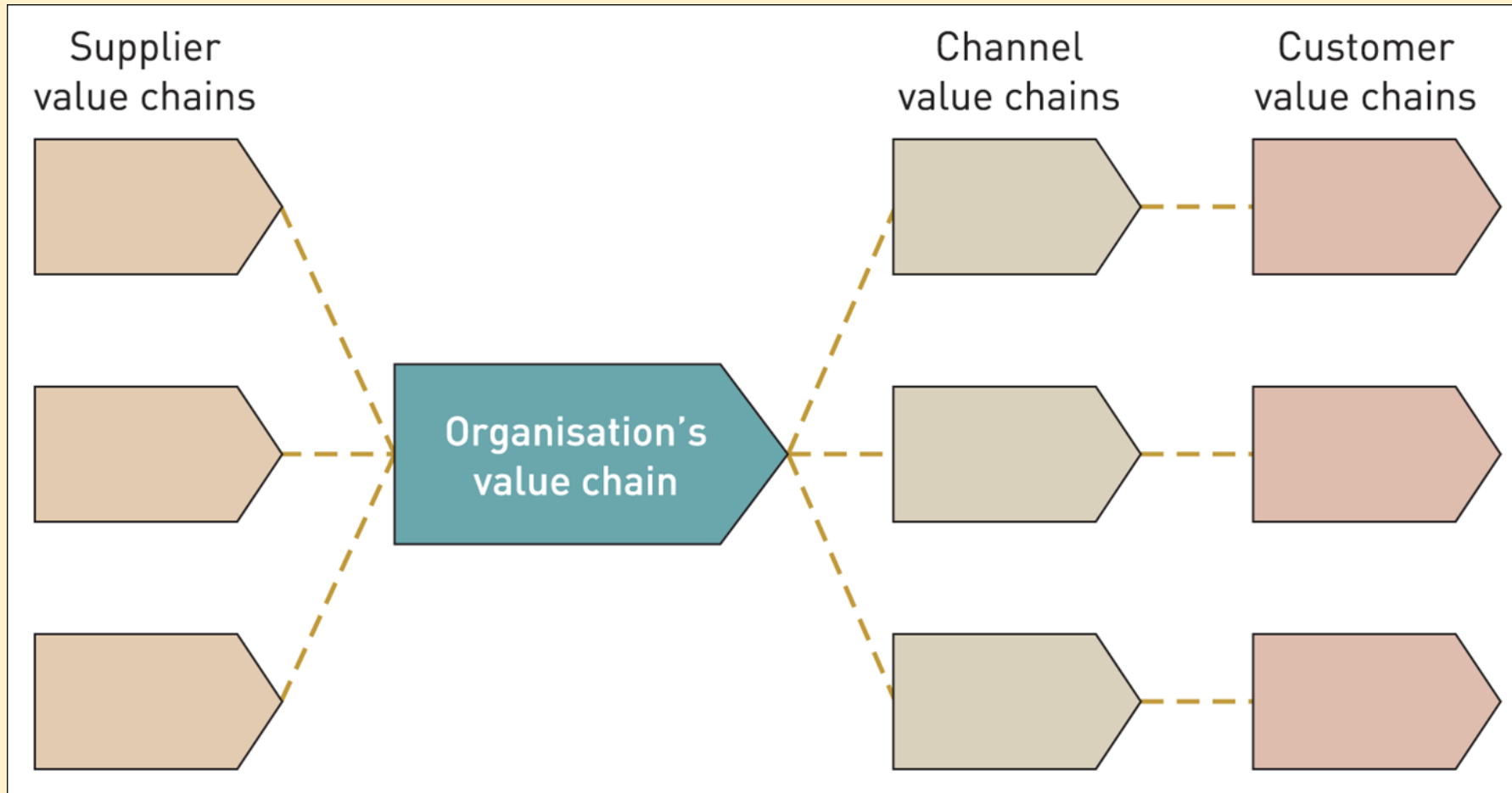


# Series of Value Chains in the Supply Network

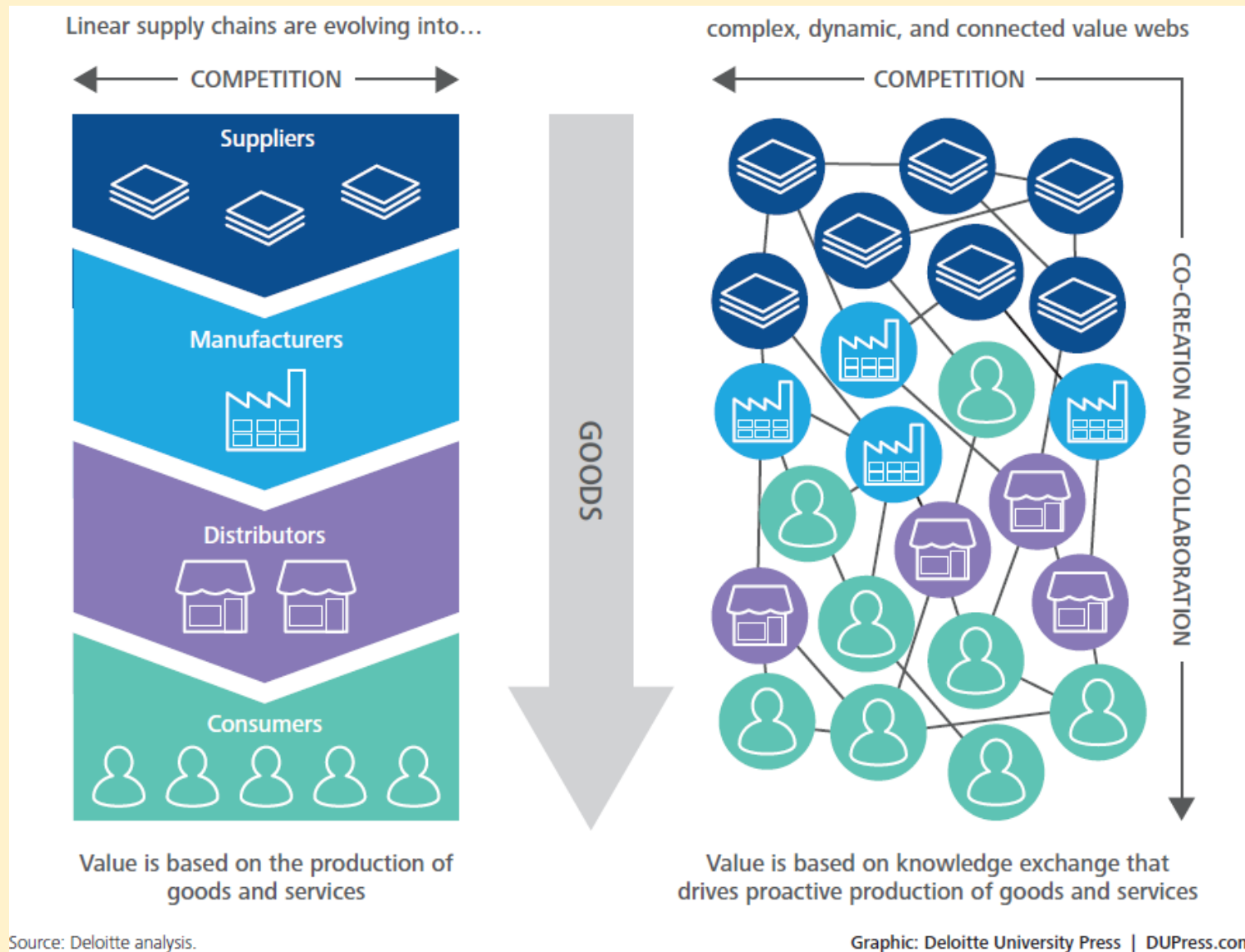




# The value network- Porter (1985, 1998)



# Supply chains evolve into value webs | Deloitte (2015)



# DHL Partnership with Dell Technologies: Direct Shipping

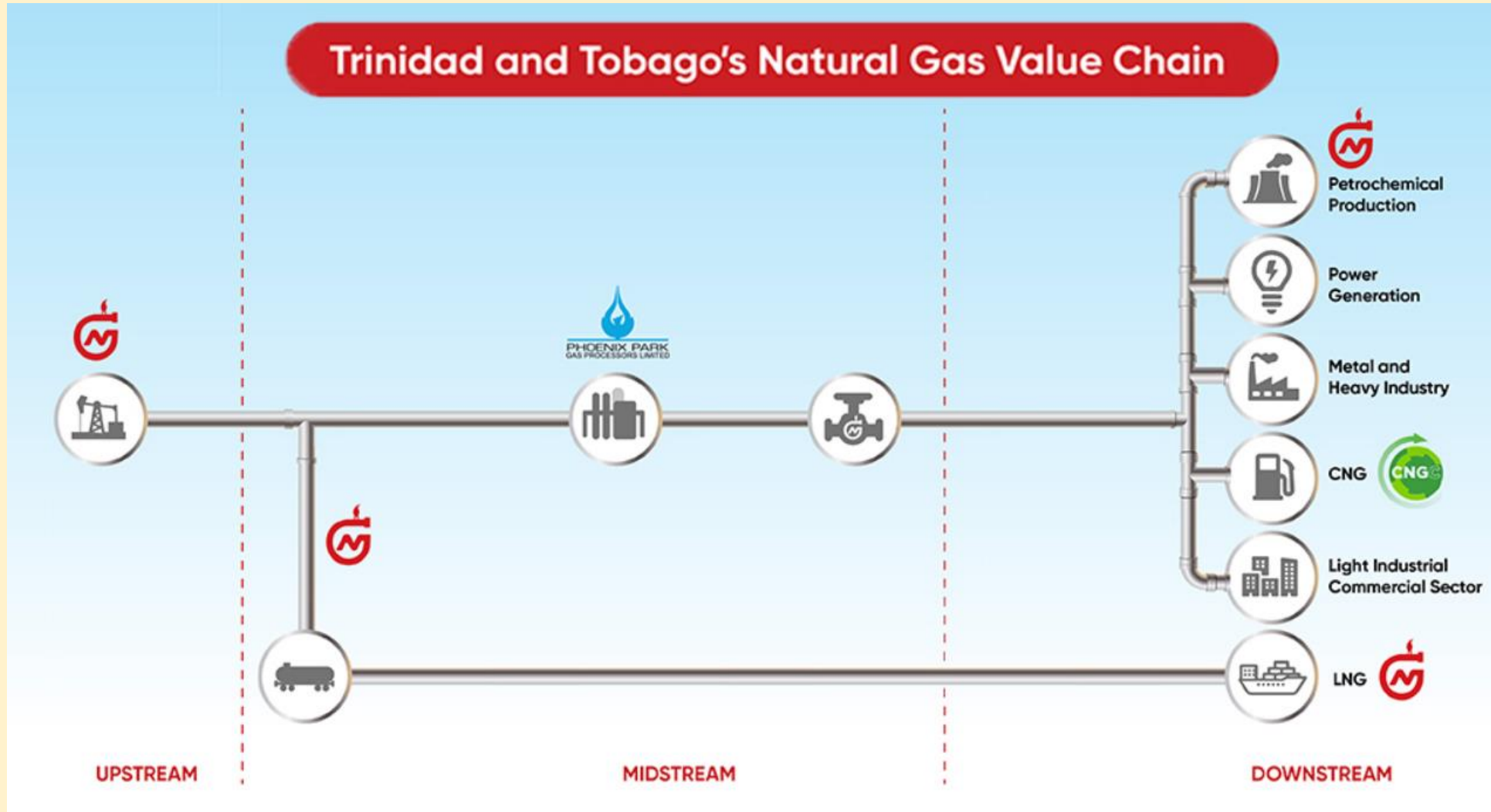


<https://www.youtube.com/watch?v=szNQRftuKEY>

# The supply chain and competitive performance

- Each of these organization in the chain are dependent upon each other by definition
- Yet, paradoxically, by tradition do not closely co-operate with each other.
- It is still the case today that some companies will seek to achieve cost reductions or profit improvement at the expense of their supply chain partners
- Simply transferring costs upstream or downstream does not make them any more competitive

# T&T Natural Gas Value Chain



<https://ngc.co.tt/about/value-chain/>

# What happens when upstream cost is too high?



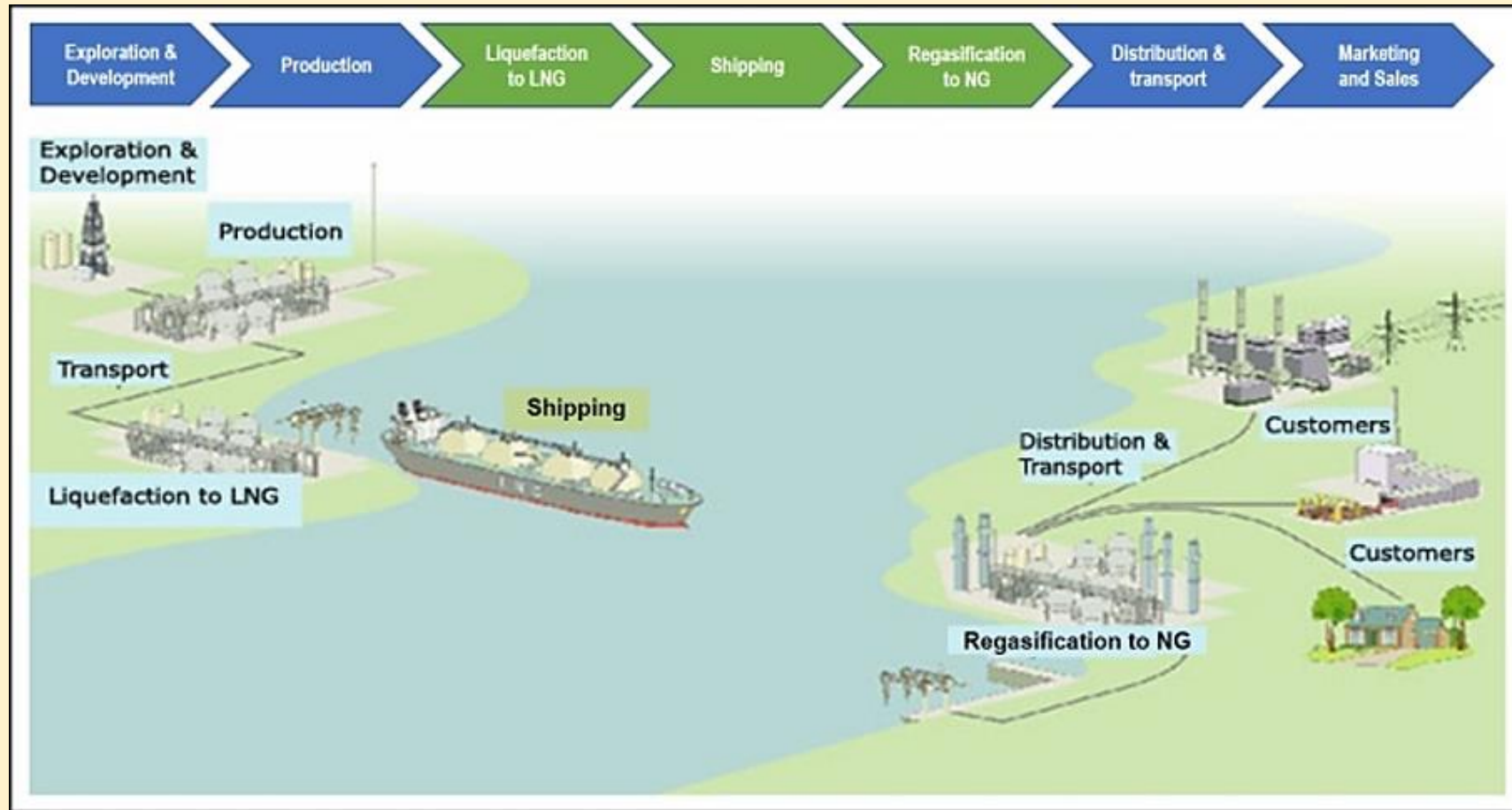
Knowledge grows

## Yara curtails production due to increased natural gas prices

MARCH 09, 2022

**Oslo, 9 March 2022:** As a consequence of record high natural gas prices in Europe, Yara is temporarily curtailing production at its Ferrara (Italy) and Le Havre (France) plants. The two plants have a combined annual capacity of 1 million tonnes ammonia and 0.9 million tonnes urea. Including optimization and maintenance at other production facilities, Yara's European ammonia and urea production is expected to be operating at approximately 45% of capacity by the end of this week.

# LNG Value Chain

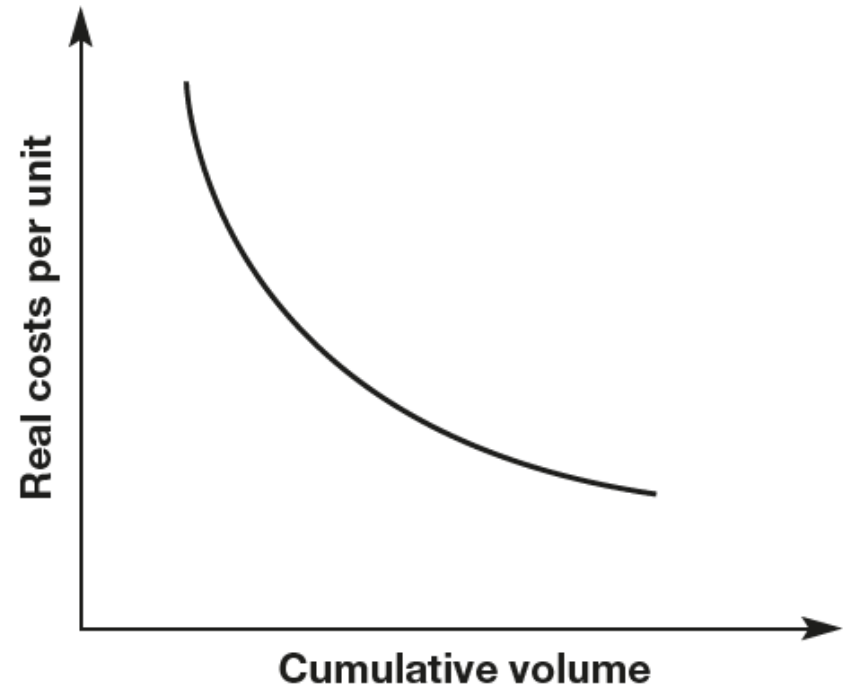


<https://www.ownerteamconsult.com/overview-of-the-lng-industry/>

# Reducing Cost in the Value Chain

- Reduce Input Cost
- Identify cost drivers of internal value chain activities
- Economies of Scale
- Experience Curve
- Product/Process Design

The experience curve

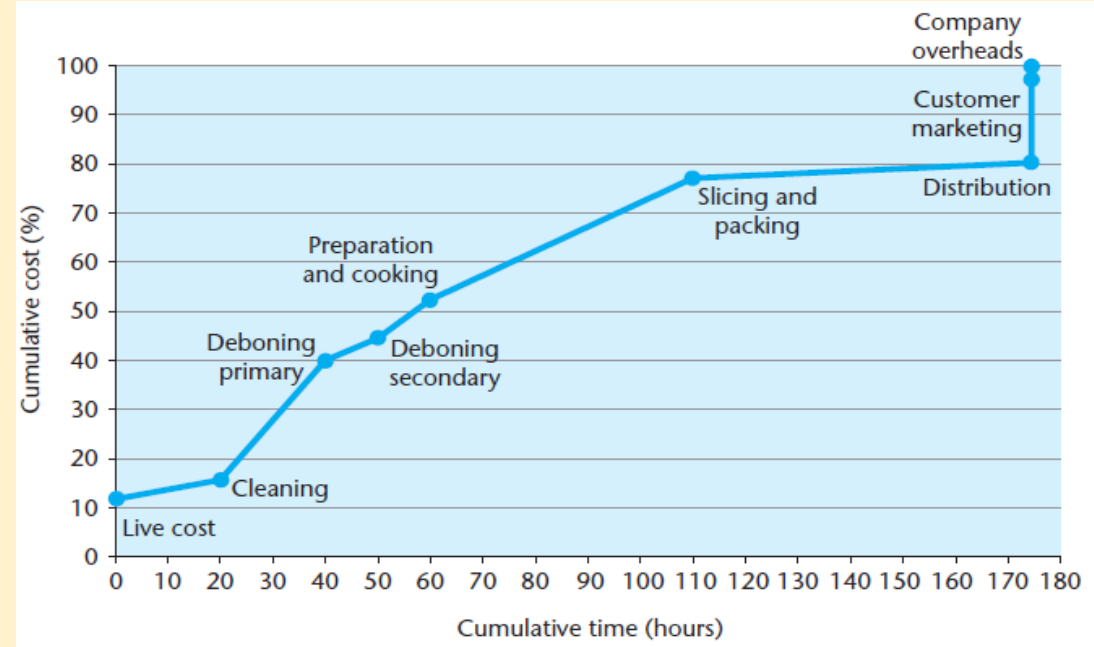


Source: Christopher (2016)

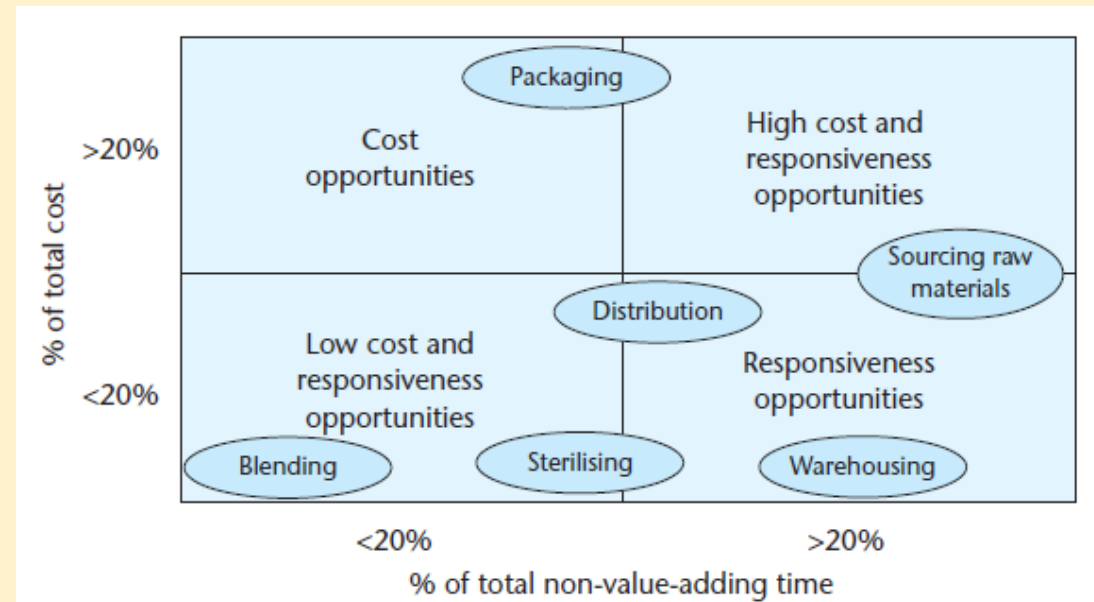


# Reducing Supply Chain Cost

- Sourcing
- Transportation-Location
- Warehousing
- Distribution
- Labour
- Inventory Visibility
- Product Mix- Variety/Volume



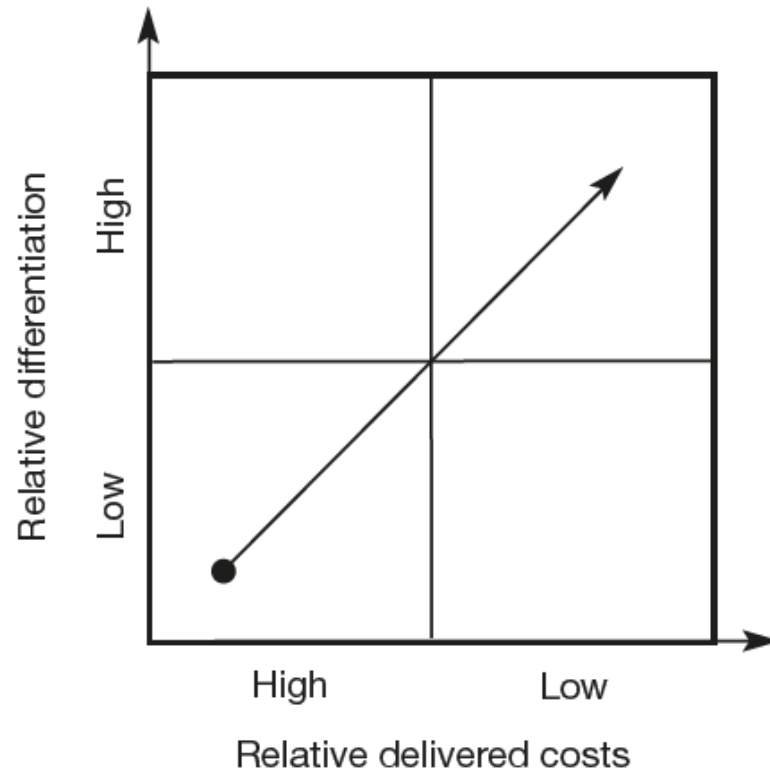
Cost Time Profile- Poultry | Source: Harrison (2012)



Cost Time Grid | Source: Harrison (2012)

# So what is the Challenge?

## The challenge to logistics and supply chain management



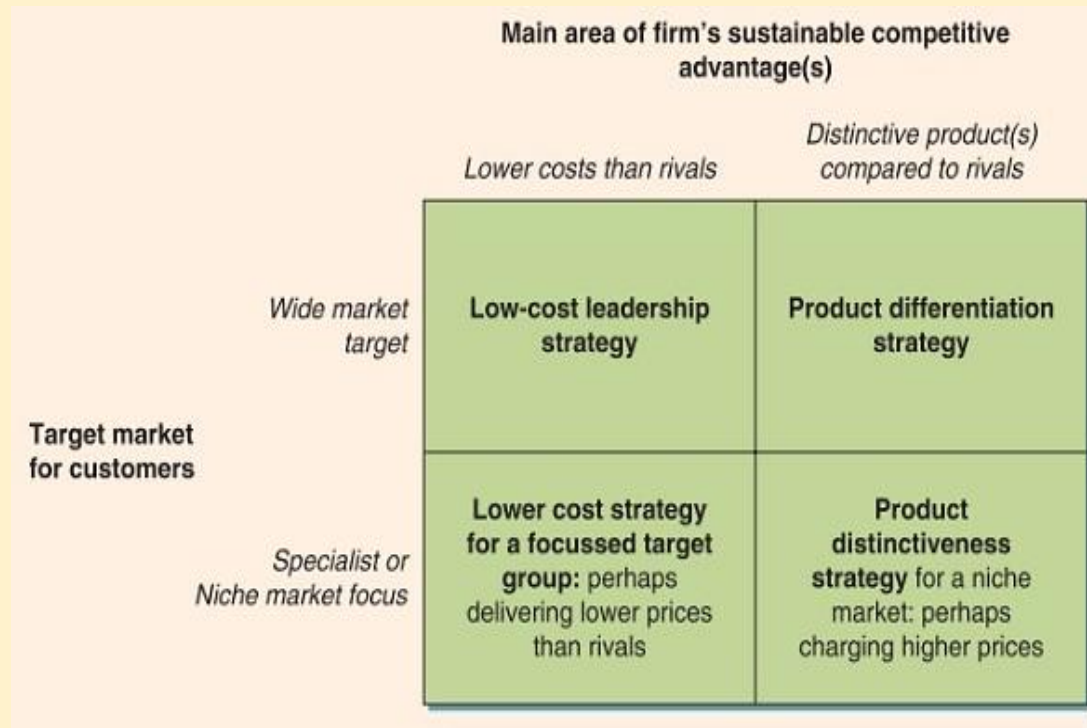
- Leaders in the market will achieve both:
  - **cost leadership and**
  - **service leadership**
- Giving a position of strength that is extremely difficult for competitors to attack

Source: Christopher (2016)

# SC and Competitive Advantage

# Effective logistics and supply chain management → Major source of competitive advantage

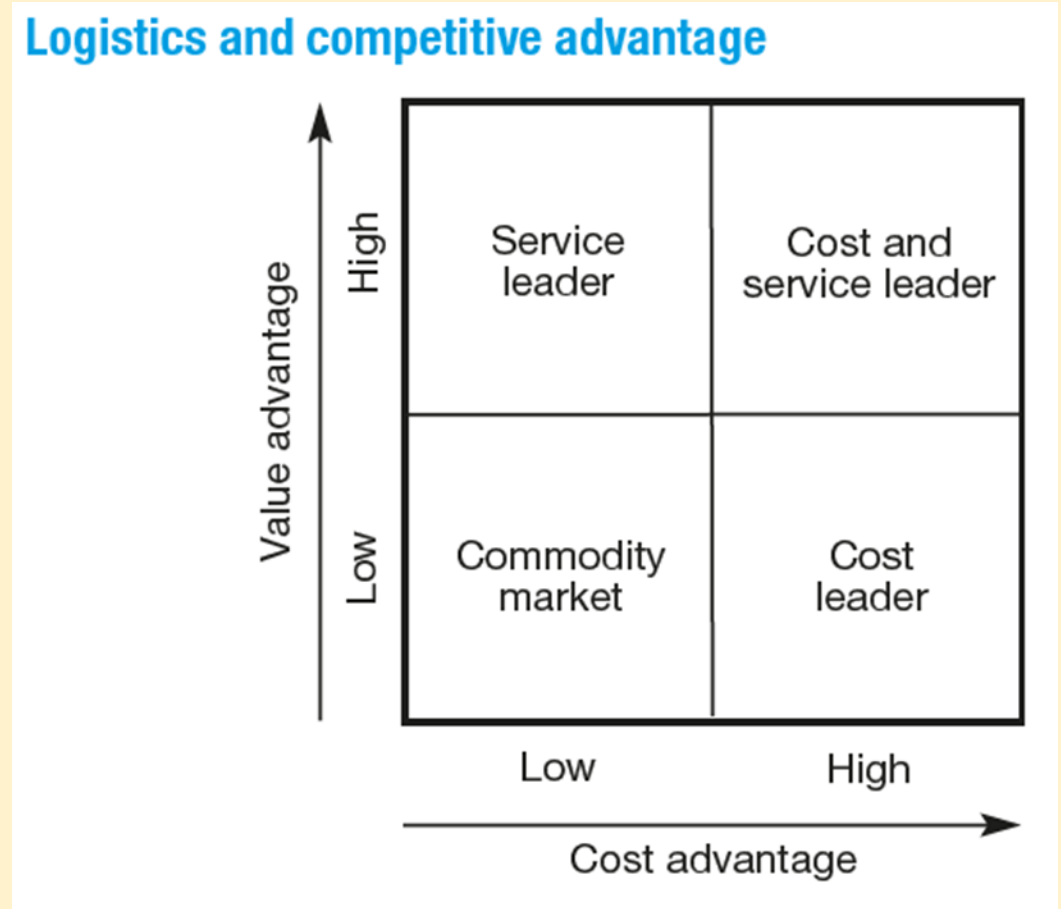
## Porter's Generic Strategies



# Logistics and Competitive Advantage

Christopher (2015)

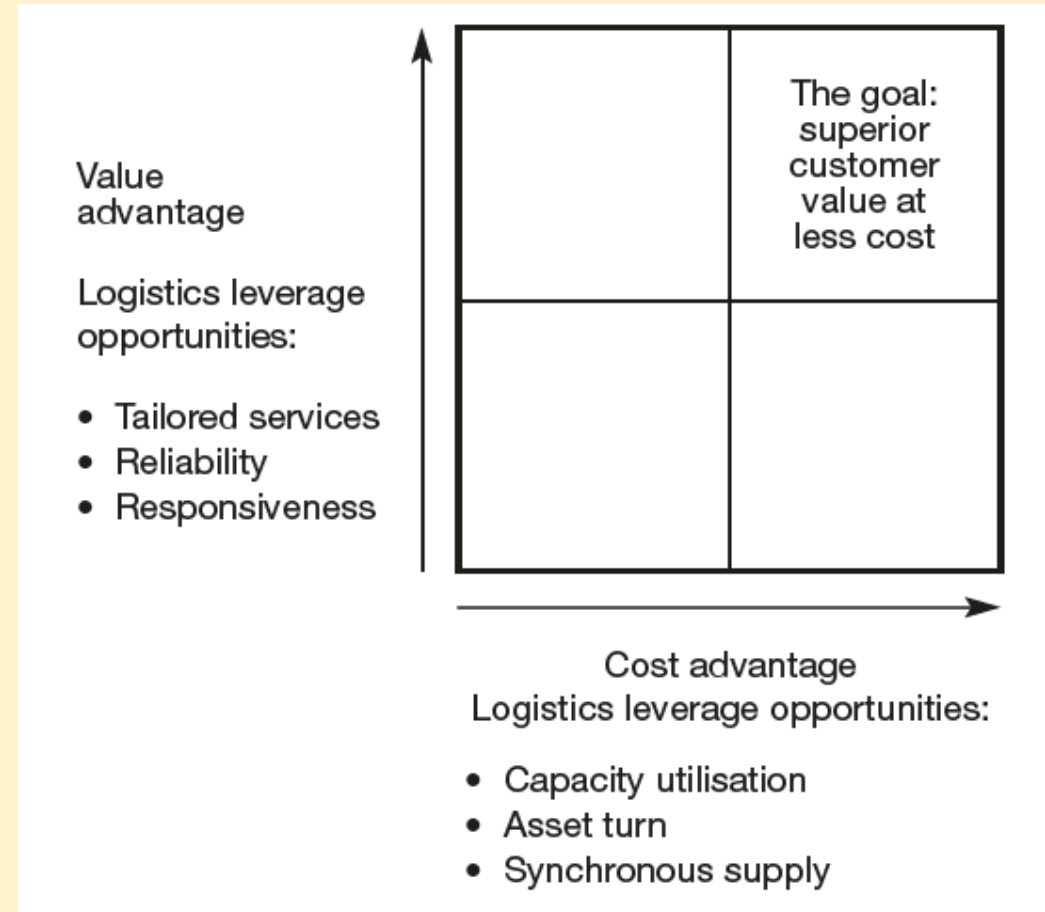
- The most profitable competitor in any industry sector tends to be the:
  - lowest-cost producer or
  - the supplier providing a product with the greatest perceived differentiated values.
- Put very simply, successful companies either have:
  - a **cost advantage** or
  - **value advantage**,



Source: Christopher (2016)

# Gaining competitive advantage

- Is there a middle ground between cost leadership and differentiation
- Logistics and supply chain management, it can be argued, has the potential to assist the organization in the achievement of both:
  - Cost advantage
  - Value advantage.



Source: Christopher (2016)

# How Amazon Delivers Packages So Fast



<https://www.youtube.com/watch?v=91jKeKuUaDM>

# To Summarize

- The Goal of SCM:
  - Planning and co-ordinating the materials flow from source to user as an **integrated system** rather than independent activities.
  - Thus, under this approach the goal is to link the marketplace, the distribution network, the manufacturing process and the procurement activity in such a way that **customers are serviced at higher levels and yet at lower cost.**
  - In other words, the goal is to **achieve competitive advantage through both cost reduction and service enhancement.**





# Guiding Principles for Supply Chain Manager

- Manage the 4R's (Christopher 2016)

## Responsiveness

ability to respond to customers' requirements- Agility

---

- Customers want shorter lead times, they are also looking for flexibility
- Must be much more demand-driven than forecast-driven

## Reliability

consistently supply the right product at the required time

---

- Achieved through re-engineering the process
- Reducing process variability

## Resilience

cope with unexpected disturbances

---

- Managing the critical nodes and links of a supply chain
- Importance of strategic inventory
- Selective use of spare capacity

## Relationships

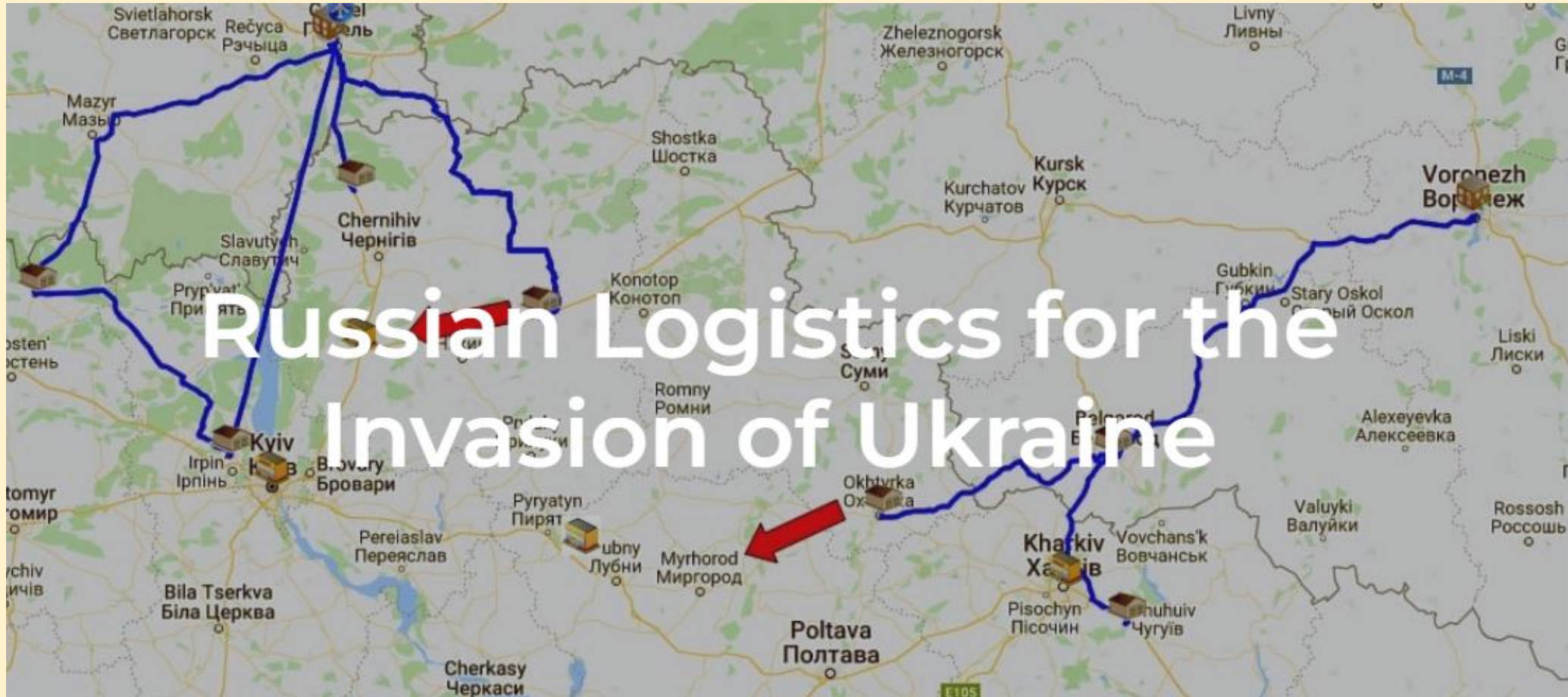
management of relationships across complex networks of companies

---

- Seeking mutually beneficial, long-term relationships with suppliers
- Search for win-win solutions based upon mutuality and trust
- Integrate planning of production and deliveries

# Supply Chain Capabilities

# Logistics Lessons from the Russia-Ukraine War

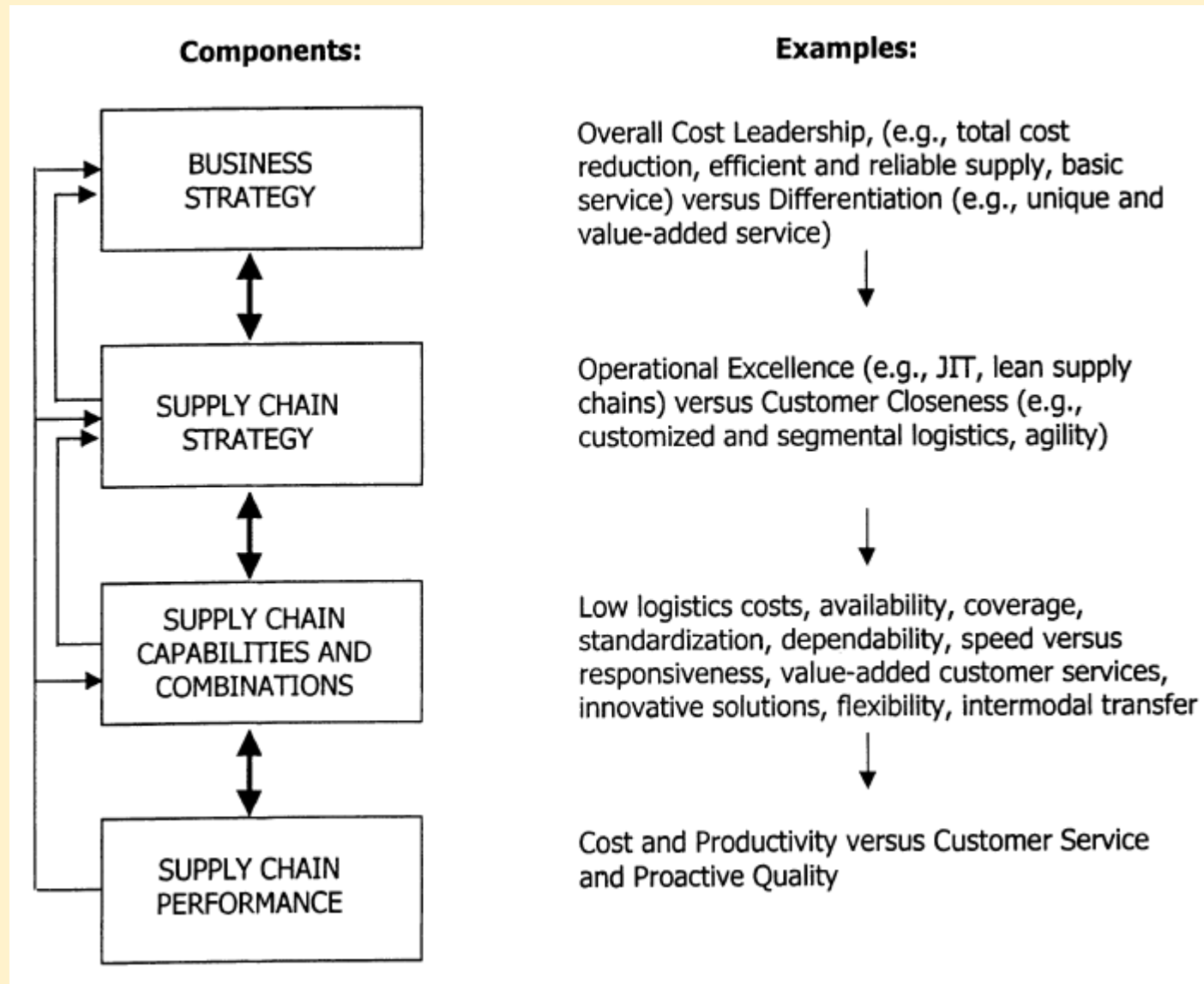


# Probable Ukrainian Defense Strategy is Based on Logistics



Rail map by SCM Globe and Voland77, Public domain, via Wikimedia Commons, [https://commons.wikimedia.org/wiki/File:Rail\\_Map\\_Ukraine.png](https://commons.wikimedia.org/wiki/File:Rail_Map_Ukraine.png)

# Model of Supply Chain Strategy, Capabilities and Performance



Source: Morash (2001, pg. 38)



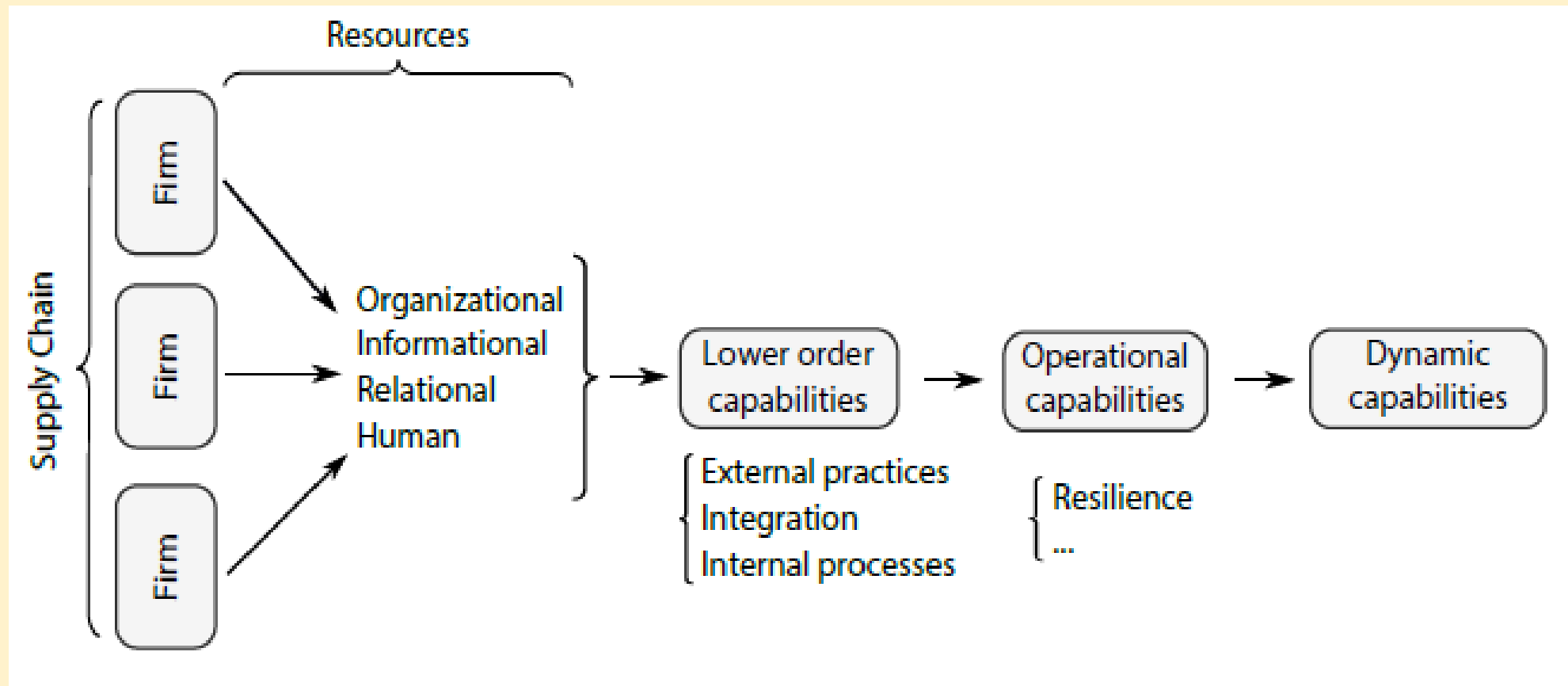
# Supply Chain Capabilities

- **Supply Chain Strategy must be supported by Supply Chain Capabilities**
- Capabilities can lead to differences in the performance of firms, even if firms are similar in terms of resources and capability endowments (Easterby-Smith et al., 2009)
- **Supply chain capabilities, refers to a firm's ability to:**
  1. identify, utilize, and assimilate external resources to facilitate the entire supply chain activities
  2. accumulate valuable assets and resources embedded within, available through, and derived from the network of relationships

# Resource Based View (RBV)

- The RBV, argues that the differences in firms' behaviors and performance are fundamentally dependent on:
  - the unique assembly of **internal resources and capabilities**,
  - which are **valuable, rare, imperfectly inimitable and non-substitutable**

# Capabilities- Resource Based View



Source: Brusset, Xavier & Teller, Christoph 2016



# Lower-order Capabilities

- the set of:
  - physical, financial, human, technological, and organizational resources (Grant, 1991)
- These are coordinated by organizational routines (Nelson and Winter, 1982) and deployed in an organization and across organizations.
- Managerial systems, procedures and processes

- Lower-order capability, when combined with other practices, will contribute to a higher-order operational capability (Su and Yang, 2010).
- These practices can be grouped as:
  - External capabilities
  - Integration capabilities
  - Internal Processes

# External and Integration Capabilities

- **IT systems** to enhance interorganizational integration and coordination
- Partners have to **collaborate** through systems such as:
  - Vendor Managed Inventory (VMI)
  - Collaborative, Planning, Forecasting, and Replenishment (CPFR)
  - Efficient Customer Response (ECR)
- **Information sharing** can also provide flexibility and improve the responsiveness of the supply chain

# Internal Processes

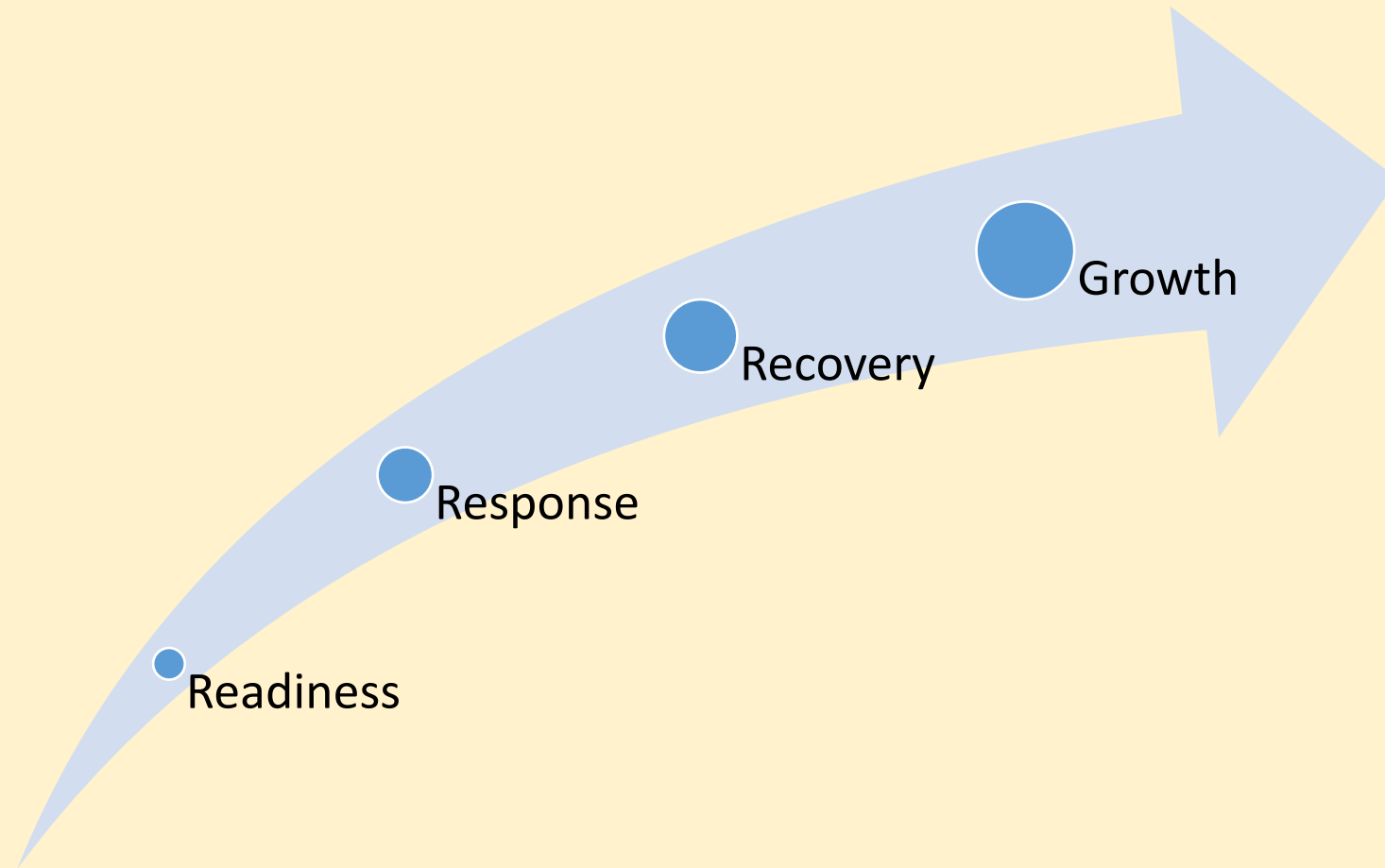
- Forecasting and planning processes within the supply chain are scaled up
- Better control of inventories and production schedules

# Operational Capability

- Refers to a firm's **ability to execute and coordinate the various tasks required to perform operational activities,**
- Such as distribution logistics and operations planning, which are processes and routines rooted in knowledge (Cepeda and Vera, 2007).

- Used to respond to unforeseen events affecting the ability of a supply chain to perform (Barreto, 2010; Eisenhardt and Martin, 2000).
- **Resilience**, as defined by Brandon-Jones et al. (2014), page 55, and Christopher and Peck (2004), page 4, as “the ability of a supply chain to return to normal operating performance, within an acceptable period of time, after being disturbed”

# Supply Chain Resilience (SCRES) Stages



[Scala and Lindsey 2020](#)

# Strategies of building Supply Chain Resilience

Avoidance

Redundancy

Collaboration

Visibility

Agility

Flexibility



# Activity- SC Resilience Poll

- In the last 12 months, To what extent have your organization prioritized the following so as to improve SC Resilience?



- <https://www.menti.com/7tgi19nmwh>

# Dynamic Capability

- The ability to dynamically integrate, build, and **reconfigure** lower-order competences to achieve congruence with changing business environments
- They are a **learned pattern** of collective activity and strategic routines
  - generate and **modify operating practices** to achieve a new resource configuration

(Brusset, Xavier & Teller, Christoph 2016)

- Dynamic capabilities are higher-order capabilities that refer to a firm's ability to **sense opportunities and threats** in the marketplace
- To **seize opportunities** as they arise and to **transform assets and organisational structures** as the organisation grows and market requirements change (Teece, 2007)
- Achieved through:
  - Agility
  - Adaptability
  - Market Sensing

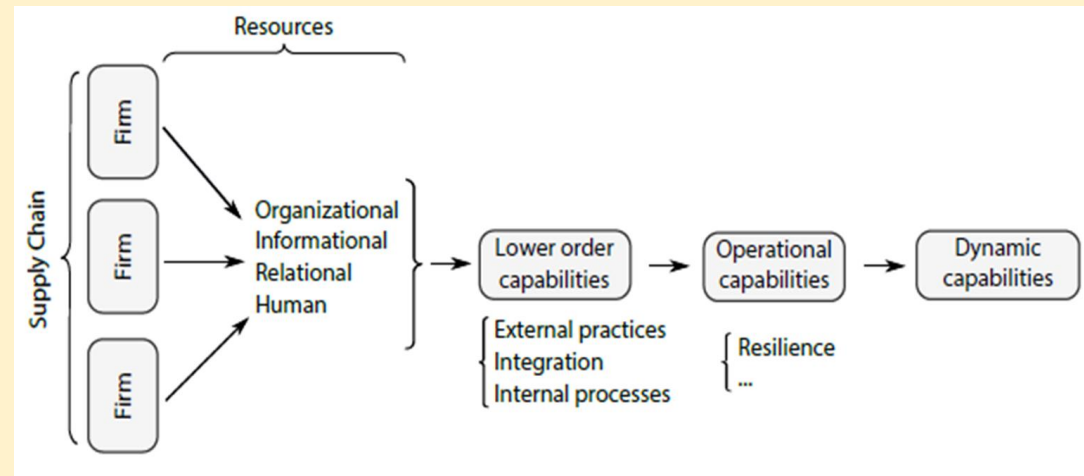
- Swafford et al. (2006) argue that **supply chain agility** is a capability that allows the supply chain to seize opportunities once they are sensed
- **Supply chain adaptability** refers to a firm's ability to reconfigure and transform supply chain design according to expected market changes (Lee, 2004)
- **Market sensing** reflects the firm's routines related to actively learning about customers, competitors, supply chain members and the business environment that allows for understanding of market conditions as well as for prediction purposes (Morgan, 2012).

# Supply Chain Ambidexterity

- The theory of **ambidexterity suggests** that given the rapid change in competitive and market forces, **it is not sufficient anymore to achieve competitive advantage while focusing on a single objective** such as responsiveness or efficiency
- To become ambidextrous, firms need to **harmonise these contradictory demands** imposed by the environment
- These demands include **balancing efficiency in exploiting** current resource positions versus **exploring** and responding to future market conditions

# Group Activity: Develop a SC Capability Model

- In your groups
- **Develop a SC Capability Model** using the pool of capabilities discussed earlier
- Start with the initial model we used:



- Modify it:
  - by adding and/or removing capabilities
  - Creating relationships/link between capabilities
  - Think about input/output, hierarchy, cause and effect

# Summary of SC Capabilities- Model

# Supply Chain Capabilities Model



Source: <https://www.ciopages.com/store/supply-chain-capabilities-model/>



# Decomposition of the Supply Chain Capabilities Model

Level 1	Level 2	Level 3	Level 4
Supply Chain Planning	Strategic Sourcing	Spot Buying	Order Forecasting
Procurement Management	Procurement Methods	Tender Management	Demand-based Material Pull
Manufacturing	Category Management	E-Auctions	Transportation Network Optimization
Warehousing	Mobile Enablement	Procurement Networks	Total Cost of Material Analysis
Transportation and 3 Party Logistics	Supplier Cost Benchmarking	Just-in-Time Ordering	Real-Time Communication and Visibility
Sales Order Management		Procurement Outsourcing	
Governance and Risk Management			

Source: <https://www.ciopages.com/store/supply-chain-capabilities-model/>

# Maturity Model for Supply Chain Management

	<i>Design</i>	<i>Source</i>	<i>Make/Mfg</i>	<i>Market/Sell</i>	<i>Deliver</i>	<i>Service</i>
<i>Strategic</i>	Customer/ Supplier design collaboration	Supply base rationalisation and allocations	Rationalise manufacturing/ distribution network	Promotion strategy rationalisation	Negotiate contracts or outsourcing partnerships	Rationalise spares network
	Product line/mix rationalisation	Supplier Relationship Management (SRM)	Capacity rationalisation	Rationalise sales channels	Select logistics partners	Select inv stocking points
	New product requirements analysis	In/Outsourcing rationalisation	Long-term expansion	Market analysis	Rationalise transportation network	Service facilities rationalisation
	DFx	Indirect materials strategy	MRO strategy	Marketing spend	Reverse supply chain	Establish service level expectations
	Phase In/Phase Out		Order management	Partner products		
		Supplier selection and contract negotiation		Branding		

Source: Lahti, M. & Shamsuzzoha, AHM & Helo, Petri. (2009)

# Sustainable Supply Chain Capabilities

- Based on the triple bottom line:
  - The economic,
  - **environmental**, and
  - **social** capabilities

# Environmental SC Capabilities

- Refers to a firm's ability to manage environmental issues in the supply chain
- Harm elimination such as **zero emission** throughout the entire supply chain
- **Green procurement**
- **Environmental management system** and audits
- Provided **technical, managerial and financial assistance** to address environmental issues
- **Green energy**

# Social SC Capabilities

- child labor
- forced labor
- human rights
- diversity and safety

# Models to Analyse SC Capabilities

# Models to Analyse SC Capabilities

- SWOT
- VRIO

# Supply Chain SWOT Analysis- Generic



## ***Strengths***

This section will outline the supply chain processes that are working well.

**What is the company good at?**

Examples:

- Good QC
- Inventory turnover
- Low returns
- Happy employees
- Loyal customers
- High productivity
- Quick order turnaround
- Solid carrier partnerships
- Lean operations



## ***Weaknesses***

This section will outline the processes that aren't working well.

**What areas need to be improved?**

Examples:

- Too many returns
- Inventory churning
- High labour costs
- Poor space utilization
- Poor stock management
- High human error rate
- Workforce skill gap
- Poor use of technology



## ***Opportunities***

This section identified the opportunities for growth.

**What should the company invest on?**

Examples:

- Outsourcing fulfilment
- Partnering with new key suppliers
- Growth in demand for company's products
- Product line expansion
- DC Automation
- Supply Chain software



## ***Threats***

This section identified the external threats to the company's objectives.

**What should the company watch for?**

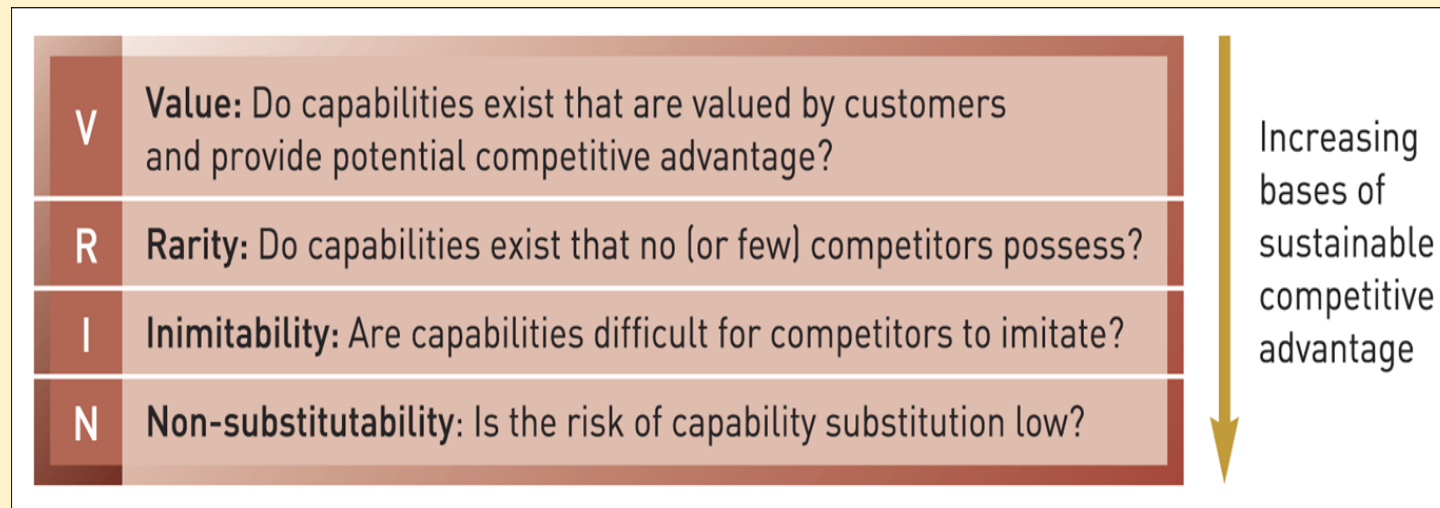
Examples:

- Raw material cost fluctuation
- New market players
- Supply chain disruption
- Stock depletion
- Market demand
- Gap between company culture and business processes



# VRIO/VRIN Analysis

- Value, Rarity, Imperfect Imitability, Organization (VRIO),
- and Non-substitutability (N in the VRIN)



Source: Johnson and Scholes (2011)

# VRIO Examples

## Amazon's Organizational Resources & Capabilities

	V	R	I	O
- Growing brick-and-mortar presence	✓			
- Growing diversity of online services	✓			
- Growing portfolio of private label products	✓			
- Extensive delivery network involving domestic, regional, and international partnerships	✓	✓		
- Expertise based on a considerable history of e-commerce	✓	✓		
- Strategic warehouses and distribution hubs	✓	✓		
Sustained Competitive Advantage(s):				
- High global brand equity	✓	✓	✓	✓
- High market capitalization	✓	✓	✓	✓
- International network of affiliates that expand international market reach	✓	✓	✓	✓
- Artificial intelligence capabilities	✓	✓	✓	✓

## Apple's Organizational Resources & Capabilities

	V	R	I	O
NON-CORE COMPETENCIES:				
Business process automation	✓			
Competitive employee compensation packages	✓	✓		
Human resource capabilities for innovation	✓	✓		
Product mix diversity	✓	✓	✓	
CORE COMPETENCIES OR SUSTAINED (LONG-TERM) COMPETITIVE ADVANTAGES:				
Globally popular premium brand	✓	✓	✓	✓
Systems set up for rapid innovation	✓	✓	✓	✓
Ecosystem of complementary products	✓	✓	✓	✓
Access to user information	✓	✓	✓	✓
Artificial intelligence capabilities	✓	✓	✓	✓
Global distribution and sales network	✓	✓	✓	✓

## Netflix Inc. VRIO & VRIN Analysis & Table (Resource-Based View)

ORGANIZATIONAL RESOURCES & CAPABILITIES                      V   R   I   O   N

### Competitive Disadvantage:

High dependence on third-party entertainment content producers

### Competitive Parity or Equality:

Innovativeness	✓				
Information technology assets	✓				

### Temporary Competitive Advantage:

Support and licenses from entertainment content creators and copyright holders	✓	✓			
--	---	---	--	--	--

### Unexploited Competitive Advantages:

High potential for online music distribution	✓	✓	✓		
High potential for online textual content distribution	✓	✓	✓		

### VRIN/VRIO core competencies (Long-Term/Sustained Competitive Advantages):

High equity of the Netflix brand	✓	✓	✓	✓	✓
Large platform of content producers and consumers	✓	✓	✓	✓	✓
High capacity for original content creation	✓	✓	✓	✓	✓

## Spotify VRIO & VRIN Analysis, Table (Resource-Based View)

SPOTIFY'S ORGANIZATIONAL RESOURCES & CAPABILITIES                      V   R   I   O   N

### Competitive Parity or Equality:

Wide market reach (all mobile users on iOS, android, etc.)	✓				
Wide accessibility (easily accessible online via apps & website)	✓				
Wide reach to all potential online advertisers	✓				
Tried-and-tested IT assets to support growing music streaming operations	✓				
Capable personnel for IT and creative work	✓				

### Temporary Competitive Advantages:

Established partnerships with a multitude of rights holders	✓	✓			
Strong operational presence in major markets	✓	✓			

### Spotify's Sustained Competitive Advantages (Core Competencies):

High brand popularity	✓	✓	✓	✓	✓
Major streaming music market share leading to network effects	✓	✓	✓	✓	✓
Partnerships with major device manufacturers (Samsung smartphones and others)	✓	✓	✓	✓	✓