Lecture 2- Supply Chain Integration and Capabilities

Dr Andre Samuel  andre.samuel@sam.edu.tt  http://samuellearning.org/scm.html
Recap
Supply Chains only as strong as the weakest link
Customer Value Ratio

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

\[
\text{Quality} \times \frac{\text{Service}}{\text{Cost} \times \text{Time}}
\]

- The functionality, performance and technical specification of the offer.
- The availability, support and commitment provided to the customer.
- The customer’s transaction costs including price and lifecycle costs.
- The time taken to respond to customer requirements.

• Anything missing? Did you feel you had to take a stretch to fit it into quality, service, cost or time?
Effective logistics and supply chain management → Major source of competitive advantage

Porter’s Generic Strategies

- Low-cost leadership strategy
- Product differentiation strategy
- Lower cost strategy for a focused target group: perhaps delivering lower prices than rivals

The ‘Three Cs’

- Needs seeking benefits at acceptable prices
- Value
- Cost differentials
- Assets and utilisation

Source: Lynch (2018)

Source: Christopher (2016)
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)
So what is the Challenge?

- Those organizations that will be the leaders in the markets of the future will be those that have sought and achieved the twin peaks of excellence they have gained both:
  - **cost leadership** and
  - **service leadership**
- Giving a position of strength that is extremely difficult for competitors to attack

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)
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.
The supply chain becomes the value chain

• “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 and 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
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 organisations 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
Achieving an integrated supply chain

Real competition is not Company against Company
But
rather Supply Chain against Supply Chain

Source: Stevens (1989 cited by Christopher 2016)
Digital Supply Networks: The digital transformation of supply chains | Deloitte

https://www.youtube.com/watch?v=nwqROZPi_-0
Supply Chain Macro Processes

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Firm</th>
<th>Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRM</td>
<td>ISCM</td>
<td>CRM</td>
</tr>
<tr>
<td>Source</td>
<td>Strategic Planning</td>
<td>Market</td>
</tr>
<tr>
<td>Negotiate</td>
<td>Demand Planning</td>
<td>Price</td>
</tr>
<tr>
<td>Buy</td>
<td>Supply Planning</td>
<td>Sell</td>
</tr>
<tr>
<td>Design Collaboration</td>
<td>Fulfillment</td>
<td>Call Center</td>
</tr>
<tr>
<td>Supply Collaboration</td>
<td>Field Service</td>
<td>Order Management</td>
</tr>
</tbody>
</table>

Source: Chopra and Meindl (2013)

Integration among the above three macro processes is critical for effective and successful supply chain management.
Supply Chain Capabilities
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 imitable 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
  • Flexibility capabilities
External Capabilities

• Efficient Customer Response
• Partners have to **collaborate** through systems such as:
  • Vendor Managed Inventory (VMI)
  • Collaborative, Planning, Forecasting, and Replenishment (CPFR)
• **Information sharing** can also provide flexibility and improve the responsiveness of the supply chain
Integration capabilities

• IT systems to enhance interorganizational integration and coordination
• Collaborative platforms provide the possibility of exchanging information in real time
Flexibility capability

• **Responsiveness** to stimuli from end-consumers
• **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).
Winter (2003) argues that an operational capability provides the means by which a firm functions or operates to make a living in the present.

Resilience, as defined by Brandon-Jones et al. (2014), page 55, and Christopher and Peck (2004), page 4, is “the ability of a supply chain to return to normal operating performance, within an acceptable period of time, after being disturbed”
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)
• 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)
# Decomposition of the Supply Chain Capabilities Model

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

Source: [https://www.ciopages.com/store/supply-chain-capabilities-model/](https://www.ciopages.com/store/supply-chain-capabilities-model/)
### Maturity Model for Supply Chain Management

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

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
A new Bitcoin Mining Council has been created to improve the cryptocurrency's sustainability, following a meeting of "leading" Bitcoin miners and Elon Musk.

Social SC Capabilities

• child labor
• forced labor
• human rights
• diversity and safety
Walmart's history of worker mistreatment | UNIglobalunion

https://www.youtube.com/watch?v=yZC4neLax5o
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 fulfillment
    - 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

[https://www.iwmsglobal.co.nz/blog/supply-chain-swot](https://www.iwmsglobal.co.nz/blog/supply-chain-swot)
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

<table>
<thead>
<tr>
<th>VRIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growing brick-and-mortar presence</td>
</tr>
<tr>
<td>Growing diversity of online services</td>
</tr>
<tr>
<td>Growing portfolio of private label products</td>
</tr>
<tr>
<td>Extensive delivery network involving domestic, regional, and international partnerships</td>
</tr>
<tr>
<td>Expertise based on a considerable history of e-commerce</td>
</tr>
<tr>
<td>Strategic warehouses and distribution hubs</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>VRIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>NON-CORE COMPETENCIES:</td>
</tr>
<tr>
<td>Business process automation</td>
</tr>
<tr>
<td>Competitive employee compensation packages</td>
</tr>
<tr>
<td>Human resource capabilities for innovation</td>
</tr>
<tr>
<td>Product mix diversity</td>
</tr>
</tbody>
</table>

**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 VRIO & VRIN Analysis & Table (Resource-Based View)

<table>
<thead>
<tr>
<th>ORGANIZATIONAL RESOURCES &amp; CAPABILITIES</th>
<th>VR</th>
<th>R</th>
<th>I</th>
<th>O</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Competitive Disadvantage:</strong></td>
<td></td>
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</tr>
<tr>
<td>High dependence on third-party entertainment content producers</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Competitive Parity or Equality:</strong></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovativeness</td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td>Information technology assets</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temporary Competitive Advantage:</strong></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support and licenses from entertainment content creators and copyright holders</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Unexploited Competitive Advantages:</strong></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>High potential for online music distribution</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>High potential for online textual content distribution</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td><strong>VRIN/VRIO core competencies (Long-Term/Sustained Competitive Advantages):</strong></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>High equity of the Netflix brand</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Large platform of content producers and consumers</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>High capacity for original content creation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>ORGANIZATIONAL RESOURCES &amp; CAPABILITIES</th>
<th>VR</th>
<th>R</th>
<th>I</th>
<th>O</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Competitive Parity or Equality:</strong></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wide market reach (all mobile users on iOS, android, etc.)</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wide accessibility (easily accessible online via apps &amp; website)</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Wide reach to all potential online advertisers</td>
<td>✓</td>
<td></td>
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</tr>
<tr>
<td>Tried-and-tested IT assets to support growing music streaming operations</td>
<td>✓</td>
<td></td>
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<tr>
<td>Capable personnel for IT and creative work</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temporary Competitive Advantages:</strong></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
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</tr>
<tr>
<td>Established partnerships with a multitude of rights holders</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Strong operational presence in major markets</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spotify's Sustained Competitive Advantages (Core Competencies):</strong></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>High brand popularity</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Major streaming music market share leading to network effects</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Partnerships with major device manufacturers (Samsung smartphones and others)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>