Lean Supply Chain Management
Learning Points

- Lean supply chain management represents a new way of thinking about supplier networks
- Lean principles require cooperative supplier relationships while balancing cooperation and competition
- Cooperation involves a spectrum of collaborative relationships & coordination mechanisms
- Supplier partnerships & strategic alliances represent a key feature of lean supply chain management
Theory: Lean Represents a “Hybrid” Approach to Organizing Interfirm Relationships

- **“Markets” (Arm’s Length):** Lower production costs, higher coordination costs
  - Firm buys (all) inputs from outside specialized suppliers
  - Inputs are highly standardized; no transaction-specific assets
  - Prices serve as sole coordination mechanism

- **“Hierarchies” (Vertical Integration):** Higher production costs, lower coordination costs
  - Firm produces required inputs in-house (in the extreme, all inputs)
  - Inputs are highly customized, involve high transaction costs or dedicated investments, and require close coordination

- **“Lean” (Hybrid):** Lowest production and coordination costs; economically most efficient choice—new model
  - Firm buys both customized & standardized inputs
  - Customized inputs often involve dedicated investments
  - Partnerships & strategic alliances provide collaborative advantage

Dominant conventional approach: Vertical integration, arm’s length relationships with suppliers
Lean Supply Chain Management Differs Sharply from Conventional Practices (I)

<table>
<thead>
<tr>
<th>ILLUSTRATIVE CHARACTERISTICS</th>
<th>CONVENTIONAL MODEL</th>
<th>LEAN MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number &amp; structure</td>
<td>Many; vertical</td>
<td>Fewer; clustered</td>
</tr>
<tr>
<td>Procurement personnel</td>
<td>Large</td>
<td>Limited</td>
</tr>
<tr>
<td>Outsourcing</td>
<td>Cost-based</td>
<td>Strategic</td>
</tr>
<tr>
<td>Nature of interactions</td>
<td>Adversarial; zero-sum</td>
<td>Cooperative; positive-sum</td>
</tr>
<tr>
<td>Relationship focus</td>
<td>Transaction-focused</td>
<td>Mutually-beneficial</td>
</tr>
<tr>
<td>Selection criteria</td>
<td>Lowest price</td>
<td>Performance</td>
</tr>
<tr>
<td>Contract length</td>
<td>Short-term</td>
<td>Long-term</td>
</tr>
<tr>
<td>Pricing practices</td>
<td>Competitive bids</td>
<td>Target costing</td>
</tr>
<tr>
<td>Price changes</td>
<td>Upward</td>
<td>Downward</td>
</tr>
<tr>
<td>Quality</td>
<td>Inspection-intensive</td>
<td>Designed-in</td>
</tr>
</tbody>
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ESD.61J / 16.852J: Integrating the Lean Enterprise

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Lean Supply Chain Management Differs Sharply from Conventional Practices (II)

<table>
<thead>
<tr>
<th>ILLUSTRATIVE CHARACTERISTICS</th>
<th>CONVENTIONAL MODEL</th>
<th>LEAN MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery</td>
<td>Large quantities</td>
<td>Smaller quantities (JIT)</td>
</tr>
<tr>
<td>Inventory buffers</td>
<td>Large</td>
<td>Minimized; eliminated</td>
</tr>
<tr>
<td>Communication</td>
<td>Limited; task-related</td>
<td>Extensive; multi-level</td>
</tr>
<tr>
<td>Information flow</td>
<td>Directive; one-way</td>
<td>Collaborative; two-way</td>
</tr>
<tr>
<td>Role in development</td>
<td>Limited; build-to-print</td>
<td>Substantial</td>
</tr>
<tr>
<td>Production flexibility</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Technology sharing</td>
<td>Very limited; nonexistent</td>
<td>Extensive</td>
</tr>
<tr>
<td>Dedicated investments</td>
<td>Minimal-to-some</td>
<td>Substantial</td>
</tr>
<tr>
<td>Mutual commitment</td>
<td>Very limited; nonexistent</td>
<td>High</td>
</tr>
<tr>
<td>Governance</td>
<td>Market-driven</td>
<td>Self-governing</td>
</tr>
<tr>
<td>Future expectations</td>
<td>No guarantee</td>
<td>Considerable</td>
</tr>
</tbody>
</table>
Lean Supply Chain Management Principles Derive from Basic Lean Principles

- Focus on the supplier network value stream
- Eliminate waste
- Synchronize flow
- Minimize both transaction and production costs
- Establish collaborative relationships while balancing cooperation and competition
- Ensure visibility and transparency
- Develop quick response capability
- Manage uncertainty and risk
- Align core competencies and complementary capabilities
- Foster innovation and knowledge-sharing
## Mutually-Reinforcing Lean Practices

Translate these Principles into Action

| Design supplier network architecture | • Design of supplier network driven by strategic thrust  
|                                      | • Fewer suppliers; “clustered control”  
|                                      | • Supplier selection based on performance |
| Develop complementary supplier capabilities | • Ensured process capability (certification)  
|                                               | • Targeted supplier development (SPC, Kaizen)  
|                                               | • Greater responsibilities delegated to suppliers |
| Create flow and pull throughout supplier network | • Linked business processes, IT/IS infrastructure  
|                                               | • Two-way information exchange & visibility  
|                                               | • Synchronized production and delivery (JIT) |
| Establish cooperative relationships & effective coordination mechanisms | • Joint problem-solving; mutual assistance  
|                                                       | • Partnerships & strategic alliances  
|                                                       | • Open and timely communications  
|                                                       | • Increased interdependence & “shared destiny” |
| Maximize flexibility & responsiveness | • Seamless information flow  
|                                          | • Flexible contracting  
|                                          | • Rapid response capability |
| Optimize product development through early supplier integration | • Integrate suppliers early into design & development IPTs  
|                                                               | • Collaborative design; architectural innovation  
|                                                               | • Open communications and information sharing  
|                                                               | • Target costing; design-to-cost |
| Integrate knowledge and foster innovation | • Knowledge-sharing; technology transfer  
|                                           | • Aligned technology roadmaps |
Synchronized Production and Delivery
Synchronized Production and Delivery Throughout the Supplier Network is a Central Lean Concept

- Integrated supplier lead times and delivery schedules
- Flows from suppliers pulled by customer demand (using takt time, load leveling, line balancing, single piece flow)
- Minimized inventory through all tiers of the supply chain
- On-time supplier delivery to point of use
- Minimal source or incoming inspection
- Effective two-way communication links to coordinate production & delivery schedules
- Striving for zero quality defects essential to success
- Greater efficiency and profitability throughout the supplier network
Supplier Certification has been an Important Early Enabler of Achieving Synchronized Flow in Aerospace


Source: LAI
Concrete Example: Engine Parts Casting
Supplier Worked with Customer Company to Achieve Synchronized Flow

Source: LAI

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Mastering & Integrating Lean Basics with Prime was Necessary for Achieving Synchronized Flow

- 6S -- Visual factory
- Total productive maintenance
- Quality control
- Process certification
- Mistake proofing
- Setup reduction
- Standard work
- Kaizen
Partnerships and Strategic Alliances
Paradigm Shift in Supply Chain Management
Thinking: Evolving Lean Supplier Networks

- Value creation Network (Innovation)
  - Early supplier integration into design
  - Alignment of technology roadmaps
  - Knowledge integration & fostering innovation across supplier network

- Supplier network Efficiency (Integration)
  - Supplier partnerships & alliances
  - Common objectives
  - Value stream mapping
  - Continuous improvement

- Supply chain Design (Restructuring)
  - Make-buy linked to corporate strategic thrust
  - Align & develop supplier capabilities
  - Open communications
Lean Supplier Networks Offer Significant Competitive Advantages

- Exhibit superior performance system-wide -- greater efficiency, lower cycle time, higher quality
- Not an accident of history but result of a dynamic evolutionary process
- Not culture dependent but are transportable worldwide
- Can be built through a proactive, well-defined, process of change in supply chain management
Supplier Partnerships & Strategic Alliances Bring Important Mutual Benefits

- Reduced transaction costs (cost of information gathering, negotiation, contracting, billing)
- Improved resource planning & investment decisions
- Greater production predictability & efficiency
- Improved deployment of complementary capabilities
- Greater knowledge integration and R&D effectiveness
- Incentives for increased innovation (through cost-sharing, risk-sharing, knowledge-sharing)
- Increased mutual commitment to improving joint long-term competitive performance
Major Lean Lessons

- Supply chain design linked to corporate strategic thrust
  - Fewer first-tier suppliers
  - Greater supplier share of product content
- Strategic supplier partnerships with selected suppliers
  - Trust-based relationships; long-term mutual commitment
  - Close communications; knowledge-sharing
  - Multiple functional interfaces
- Early supplier integration into design
  - Early and major supplier role in design
  - Up-front design-process integration
  - Leveraging supplier technology base for innovative solutions
- Self-enforcing agreements for continuous improvement
  - Target costing
  - Sharing of cost savings
Chrysler: Supplier Partnerships
Speed Development

Length of Product Development Cycle

- K-Car (81)
- Minivan (84)
- Shadow (87) *Estimated
- Dakota Truck (87)
- LH Cars (93)
- Neon (94)
- JA; Cirrus/Stratus (95)
- LH Cars (98E)

Source: Dyer (1998)

* Estimated Weeks

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Integrate suppliers early into design and development IPT’s
Evolution of Early Supplier Integration in the Aerospace Industry

**“Old” Approach**
- Prime
- Key Suppliers
- Subtiers
- Arm’s length; interfaces totally defined and controlled

**“Current” Lean**
- Collaborative; but constrained by prior workshare arrangements
- Key Suppliers
- Subtiers

**“Emerging” Lean**
- Collaborative and seamlessly integrated, enabling architectural innovation
- Virtual Team w/o boundaries

ARCHITECTURAL INNOVATION: Major modification of how components in a system/product are linked together

- Significant improvement in system/product architecture through changes in form/structure, functional interfaces or system configuration
- Knowledge integration over the supplier network (value stream perspective; prime-key suppliers-subtiers; tapping supplier technology base)
Strategic Emphasis on Fostering Innovation for Value Creation across Enterprise Networks

- Transform “tribal regimes” (today’s transaction-intensive supplier networks) into “innovation networks” (learning networks with shared goals)
  - Collaborative networks
  - Enhanced flexibility
  - Responsiveness to emerging needs

- Emphasis on:
  - Innovations in system & cross-platform integration (primes)
  - Modular & architectural innovation (supplier networks)
Summary of Key Practices Enabling Architectural Innovation

- Pre-sourcing; long-term commitment
- Early supplier integration into IPTs; IPPD; co-location; joint design & configuration control
- Leveraging technology base of suppliers (key suppliers; tooling suppliers; subtiers)
- Workshare arrangements optimizing supplier core competencies
- Retaining flexibility in defining system configuration
- Open communications; informal links; knowledge-sharing
- Target costing; design to cost
- Supplier-capability-enhancing investments
- Incentive mechanisms (not to compete agreements; long-term warranty); maintaining trade secrets
- Government part of the team; relief from military standards and specifications
**Challenge:** Electronic integration of supplier networks for technical data exchange as well as for synchronization of business processes

- **Important success factors include:**
  - Clear business vision & strategy
  - Early stakeholder participation (e.g., top management support; internal process owners; suppliers; joint configuration control)
  - Migration/integration of specific functionality benefits of legacy systems into evolving new IT/IS infrastructure
  - Great care and thought in scaling-up experimental IT/IS projects into fully-functional operational systems

- **Electronic integration of suppliers requires a process of positive reinforcement --** greater mutual information exchange helps build increased trust, which in turn enables a closer collaborative relationship and longer-term strategic partnership

- **Close communication links with overseas suppliers pose a serious security risk and complex policy challenge**
Quick Review of Aerospace Progress

- Aerospace industry has made important strides in supplier integration, but this is only the beginning of the road
  - Production: Supplier certification and long-term supplier partnerships -- process control & parts synchronization
  - Development: Early supplier integration into product development critical
  - Strategic supply chain design is a meta core competency
- Implementation efforts have required new approaches
  - Re-examination of basic assumptions (e.g., make-buy)
  - New roles and responsibilities between primes and suppliers
  - Communication and trust fundamental to implementation
- Aerospace community faces new challenges and opportunities
  - Imperative to take “value stream” view of supplier networks
  - Focus on delivering best lifecycle value to customer
  - Need to evolve information-technology-mediated new organizational structures for managing extended enterprises in a globalized market environment
Lean Supplier Networks Offer Significant Competitive Advantages

• Exhibit superior performance system-wide -- greater efficiency, lower cycle time, higher quality
• Not an accident of history but result of a dynamic evolutionary process
• Not culture dependent but are transportable worldwide
• Can be built through a proactive, well-defined, process of change in supply chain management
Key Questions for Enterprise Management (1)

• Does the size, structure and composition of the supplier network reflect your enterprise’s strategic vision?

• Has your enterprise created partnerships and strategic alliances with key suppliers to strengthen its long-term competitive advantage?

• Are suppliers integrated into your enterprise’s product, process and business development efforts?
Key Questions for Enterprise Management (2)

• Is your enterprise actively fostering innovation across your supplier network?

• Are you integrating knowledge throughout your enterprise value stream?

• Has your enterprise established mutually-beneficial arrangements with suppliers to ensure flexibility and responsiveness to unforeseen external shifts?

• Does your enterprise have in place formal processes and metrics for achieving continuous improvement throughout the extended enterprise?
**Supplier Partnerships Driven by Strategic Corporate Thrust to Develop Integrated Supplier Networks**

<table>
<thead>
<tr>
<th>KEY PRACTICES</th>
<th>BEFORE</th>
<th>AFTER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reduced and streamlined supplier base</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Number of direct production suppliers</td>
<td>542</td>
<td>162</td>
</tr>
<tr>
<td><strong>Improved procurement efficiency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Procurement personnel as % of total employment (%)</td>
<td>4.9</td>
<td>1.9</td>
</tr>
<tr>
<td>• Subcontracting cycle time (days)</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td><strong>Improved supplier quality and schedule</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Procurement (dollars) from certified suppliers (%)</td>
<td>0</td>
<td>75</td>
</tr>
<tr>
<td>• Supplier on-time performance (% of all shipments)</td>
<td>76.4*</td>
<td>83.0</td>
</tr>
<tr>
<td><strong>Established strategic supplier partnerships</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Procurement dollars under long-term agreements(%)</td>
<td>0</td>
<td>95</td>
</tr>
<tr>
<td>• “Best value” subcontracts as % all awards</td>
<td>50.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Refers to 1991

Source: LAI
Focus on Early Supplier Integration

Historic opportunity for achieving BEST LIFECYCLE VALUE in aerospace weapon system acquisition through early supplier integration into design and development process

- Nearly 80% of life cycle cost committed in early design phase
- Design and development of complex aerospace systems calls on core capabilities of numerous suppliers, providing as much as 60%-70% of end product value
- Supplier network represents an enormous beehive of distributed technological knowledge & source of cost savings
- What are better ways of leveraging this capability for more efficient product development in aerospace sector?
- Worldwide auto industry experience provides critical lessons
Lean Difference: Auto Industry

Lean Difference: Significantly lower development cost and shorter cycle time

<table>
<thead>
<tr>
<th>Category</th>
<th>US</th>
<th>Japan</th>
<th>% Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average engineering hours per new car</td>
<td>3.4</td>
<td>1.7</td>
<td>50%</td>
</tr>
<tr>
<td>(millions of hours)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average development cycle time per new car</td>
<td>61</td>
<td>45</td>
<td>26%</td>
</tr>
<tr>
<td>(months)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prototype lead time</td>
<td>11.8</td>
<td>6.5</td>
<td>45%</td>
</tr>
<tr>
<td>(months to first engineering prototype)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Clark, Ellison, Fujimoto and Hyun (1995); data refer to 1985-89.
Lean Difference: Auto Industry
Supplier Role in Design

Lean difference starts with significant supplier role in design and development

**Percent of total cost of parts purchased from suppliers**

<table>
<thead>
<tr>
<th></th>
<th>US</th>
<th>Japan</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980’s (1985-89)</td>
<td>81%</td>
<td>30%</td>
</tr>
<tr>
<td>1990’s (1992-95)</td>
<td>58%</td>
<td>39%</td>
</tr>
</tbody>
</table>

- **Supplier Proprietary Parts**
- **Assembler Designed Detail-Controlled Parts**
- **Supplier Designed “Black Box” Parts**

Source: Clark, Ellison, Fujimoto and Hyun (1995)
Focus on Total Value Stream Transformation*

Traditional Bilateral Focus

Customer

Large Critical Suppliers with Dominant Cost Content

Lower-tier Suppliers Left to Competitive Pressures to Drive Continuous Improvement

Value Stream Transformation Focus

Customer

Direct Involvement to Foster Improvement throughout the Value Stream

Collaborative Enterprise Supplier Networks
1. Designing the **boundaries** of the firm (i.e. the “Governance Profile”)

2. Investing in **“Dedicated” (relationship-specific) Assets”**

3. Inter-organizational **Knowledge-sharing**

4. Inter-organizational **Trust**
Firms have always been better than markets in coordinating complex tasks.

Markets have always been better than firms in achieving productivity.

Specialization increases the costs of communication and coordination, increasing incentive to in-source.

Productivity grows with the division of labor. Specialization gives access to Economies of Scale.

Tier 0
Tier 1
Tier 2
Tier 3

Vertical Integration

Arm’s Length

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1Source: "Collaborative Advantage" by Jeff Dyer
• **Loss of High-Powered Incentives**
  - No strong connection between output and rewards
  - Difficult to “fire” a sister division
  - Less access to residual profits

• **Loss of Scale and Access to Outside Customers**
  - Loss of economies of scale
  - Loss of information from external customers who provide ideas
  - Catch-22: prohibited from selling superior products outside, however, if not differentiated, then buyers won’t purchase products from competitors.

• **Loss of Strategic Flexibility**
  - Inability to raise capital

• **Higher Labor Costs**
  - Larger firms tend to pay higher wages and have stronger labor unions
Collaborative Advantage

Collaboration Pressures

Integration causes:
- Loss of Incentives
- Loss of Scale
- Loss of customer access
- Inability to Raise Capital
- Higher Labor Costs

Arm’s Length

Outsourcing causes:
- Less technology development
- Less Risk-sharing

Tier 0
Tier 1
Tier 2
Tier 3

Vertical Integration

Arm’s Length

Virtual Integration

Arm’s Length

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1Source: "Collaborative Advantage" by Jeff Dyer
Collaborative Advantage

Current Trends

Key Trends:

1. Advancement in Information Technology

   Pressures for greater Specialization of Economic Activities
   - Vertical Integration is less desirable

2. Growth in Knowledge and increased Product Complexity

   Pressures for greater Coordination of Economic Activities
   - Arm’s Length Relationships are less desirable

3. Increased Customization of Demand

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1Source: "Collaborative Advantage" by Jeff Dyer
Collaborative Advantage
Summary of “Governance Profiles”

Tier 0
- Coordination
- Governed internally by Hierarchy

Tier 1
- Vertical Integration
- Specialization & Coordination
- Governed externally by Legal Contracts

Tier 2
- Virtual Integration
- Vertical Integration
- Specialization & Coordination
- Governed externally by Trust and Implicit Long-Term Agreements

Tier 3
- Arm’s Length
- Vertical Integration
- Specialization
- Governed externally by Hierarchy
Collaborative Advantage
Example “Governance Profiles”

% of Total Component Costs

100%

55%
10%
35%

27%
48%
25%

GM & Ford

Toyoda

Manufactured Internally
Partner Suppliers
Arm’s Length Suppliers

Source: "Collaborative Advantage" by Jeff Dyer
Toyota is **twice as profitable**, and Toyota’s Suppliers are **50% more profitable** than other Japanese or US suppliers.

**Collaborative Advantage**

Profitability (1982-1998)

- **Pretax Return On Assets**
  - Toyota: 9.6%
  - Chrysler: 6.4%
  - Ford: 4.4%
  - Nissan: 3.2%
  - GM: 2.8%

**Toyota** is leader of **Lean Production**

**Chrysler** is leader of **Lean Enterprise**

- **Partnership** Focused Companies
- **Arm’s Length** Focused Companies

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1Source: "Collaborative Advantage" by Jeff Dyer
Collaborative Advantage

“Governance Profile Summary”

Getting firms to **Specialize** is much less difficult than getting them to **Collaborate**.

**Governance Profile Summary**

**Relationship Characteristics**

- **Vertical Integration**
  - **High**: Dedicated Investments
  - **Low**: Dedicated Investments

- **Virtual Integration**
  - **High**: Knowledge-Sharing
  - **Low**: Knowledge-Sharing

**Arm’s Length**

- **High**: Trust
  - Dedicated Investments
  - Knowledge-Sharing
  - Trust

- **Low**: Trust
  - Dedicated Investments
  - Knowledge-Sharing

**Cooperation & Specialization**

- **Governance Method**
  - Governed Internally by Hierarchy
  - Governed Externally by Trust and Implicit Long-Term Agreements
  - Governed Externally by Legal Contracts

- **Supplier Characteristics**
  - High Quality / Low Quantity (2 Suppliers)
  - Low Quality / High Quantity Suppliers

- **Method**
  - Differentiated, Complex

**Products**

- **Commodity**
  - Governed Externally by Legal Contracts

**Source**: "Collaborative Advantage" by Jeff Dyer
Collaborative Advantage¹

“Virtual Integration – 3 Ingredients”

• Dedicated Asset Investments
  • Investment in factories, equipment, processes and people that are customized to a particular customer or supplier.

• Knowledge-Sharing Routines
  • Proprietary Knowledge

• Inter-firm Trust
  • History of following-through on promises and commitments and refusal to take advantage, even when it has the chance.

¹Source: "Collaborative Advantage" by Jeff Dyer
Collaborative Advantage

Dedicated Assets

- **Dedicated Asset Investments**
  - Investment in factories, equipment, processes and people that are customized to a particular customer or supplier.

- **Three types of Dedicated Assets:**
  - Site **Specialization**
  - Physical Asset **Specialization**
  - Human **Specialization**

- **Toyota’s two types of suppliers:**
  - *Affiliated suppliers* (Kankei Kaisha).
    - Toyota has a minority stock ownership position.
    - They transfer employees (*Guest Engineers*).
    - 20% of top managers were former Toyota employees.
    - They average only 30 miles distance.
  - *Independent Suppliers* (Dokuritsu Kaisha)

---

1Source: "Collaborative Advantage" by Jeff Dyer
After Toyota set up in Georgetown, Kentucky, roughly 90 suppliers followed them to Kentucky.

Source: "Collaborative Advantage" by Jeff Dyer
Collaborative Advantage

Human Specialization

Defects per 100 Vehicles vs. Man-days of Face-to-Face Contact

- Chrysler
- GM
- Ford
- Nissan
- Toyota

Source: "Collaborative Advantage" by Jeff Dyer
• 22% of Toyota’s supplier’s capital investment were so dedicated to their primary customer, that they could not be redeployed if Toyota walked away.

• 15% of US firms supplier’s capital investment were so dedicated to their primary customer, that they could not be redeployed if the US firm walked away.
Collaborative Advantage

Toyota’s Consulting Teams

- **OMCD (Operations Management Consulting Division)**
  - 6 senior executives
  - 50 consultants
    - 15-20 permanent consultants
    - 25-30 “fast-track” younger consultants

- **TSSC (Toyota Supplier Support Center)**
  - US version of the OMCD

- **Toyota invests $50 million annually on Supplier Training**
  - This is only 0.03% on annual revenues of $150 billion
  - $50 million invested to achieve 3.3% spread on profits for themselves (& their suppliers) = $5 billion
  - For every $1 spent on Supplier Training, $100 comes back in profit.

High Leverage in Organizational Learning

$1 profit

---

1Source: "Collaborative Advantage" by Jeff Dyer
Long Term Contracts and Pricing

Focus should be on Improvement... Cost and Price follows.

Consider sharing Market Risk with suppliers by decoupling future sales volumes.

Negotiated Price Curve for First Period

Negotiated Price Curve for Second Period

Supplier Cost Reduction & Additional Profit

Customer Savings

Time

Years 1-3

Years 4-6

Price

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1Source: "Collaborative Advantage" by Jeff Dyer