



Collaboration in Supply Chains: With and Without Trust

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Exit vs. Voice in Supplier Relations

Exit

- Buyer's response to problem: find a new supplier
- Use "stick" of threatening to exit from the relationship
- Autonomy-seeking; go to market rather than engage in problem-solving
- Buyer has minimal role in reducing costs or improving supplier capabilities

➔ *Coordination-minimizing*

Voice

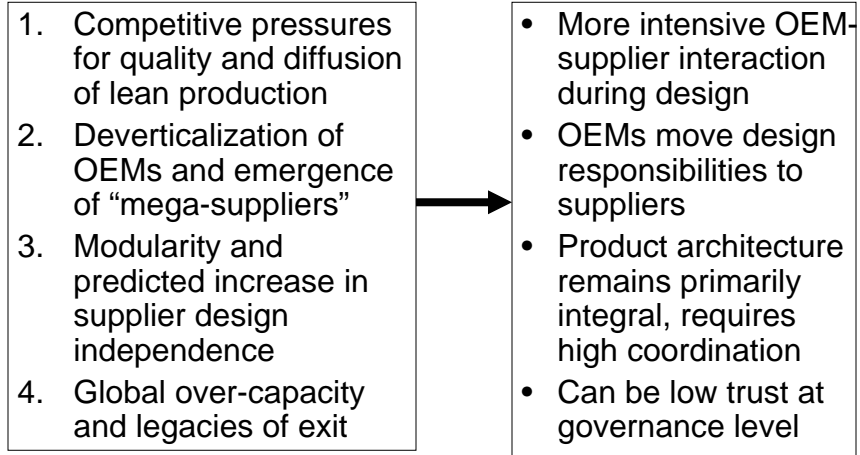
- Buyer's response: work with supplier until problem is corrected
- Use "carrot" of mutual profits from improved products and processes
- Interaction-intensive; actively engage in problem-solving rather than pursue alternatives
- Both buyer and supplier work to reduce costs and improve supplier capabilities

➔ *Coordination-maximizing*

Source: Helper (1991), Sako (1992), Helper and Sako (1995)



Implications for Collaboration



→ More inter-firm collaboration on design, can be with or without trust

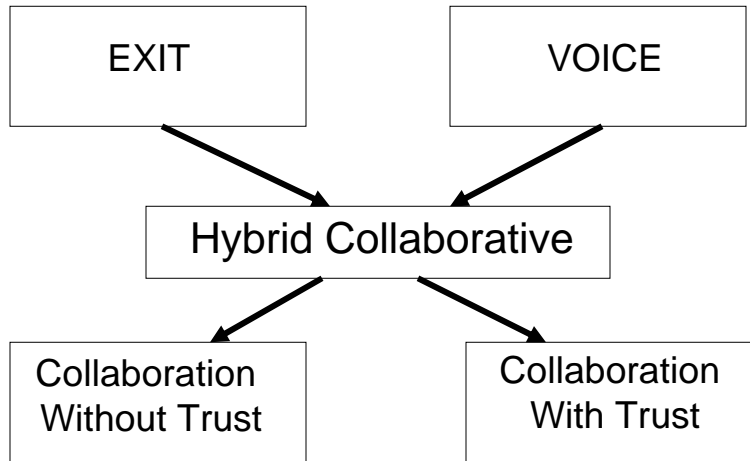


From 'Exit' and 'Voice' to Hybrid Collaborative Mode of Exchange

EXIT	VOICE	HYBRID -- NEW COLLABORATIVE
Arms-length & transactional	Long-term & relational	Long-term & relational
Open for new suppliers to bid	Set of potential suppliers mostly closed	Open to new suppliers, after a vetting period
Competitive selection by low bid – frequent and speedy exit	Selection based on capabilities -- exit rare and slow	Competitive assessment -- intermediate frequency and speed of exit
Design simplified by customer to enlarge pool of suppliers	Design controlled by customer, supplier involved via resident engineer	Larger design role for supplier, attention to supplier design capabilities
No equity stake	Often an equity stake	Equity stake depends on criticality of technology
Contracts for governance	Norms /dialogue for governance	Norms + process management routines for governance
Codified procedures	Tacit procedures	Process management routines make procedures explicit



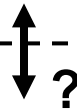
Two Patterns Emerging from Hybrid Collaborative Mode



Collaboration without Trust



**Governance Level
(Purchasing Routines)**



**Task Level
(Interaction-intensive Co-design)**





Collaboration With and Without Trust

	Collaboration Without Trust	Collaboration With Trust
Legacy Mode	Exit	Voice
Governance Level (Purchasing Regime)	Adversarial/Zero-Sum/ Short-term	Cost management/ Mutual gain/Long-term
Task Level (Design/ Engineering)	<ul style="list-style-type: none"> • Interaction-intensive co-design • Low discretionary effort (?) 	<ul style="list-style-type: none"> • Interaction-intensive co-design • High discretionary effort (?)
Info Exchange	Low at governance level; high at task level	High at governance and task level
Trust - Governance	Low	Emergent → High
Trust - Task	??	Emergent → High



Questions about Collaboration With and Without Trust

- Is trust a necessary precondition for collaboration?
- Can gains from collaboration with trust be appropriated by firms practicing collaboration without trust?
- What constraints on collaboration with trust over time?
- Can collaboration without trust persist?



Tensions in U.S. Supplier Relations

- Primary location of “collaboration without trust”
- Caught between legacy of “exit” and experiments with “voice”
- Cost pressures lead to OEM actions that destroy trust at governance level



A Cry from the Supplier Heart

“There is little chance that beating the hell out of the supplier base, breaking contracts,....not paying your tooling bills,...is going to get to the root cause of your problem, Big Three.

You know the same suppliers raked over the coals, and used as a whipping boy to explain the Big Three's cost problem, are the same suppliers investing, building partnerships and earning a good return with the vehicle producers that have the growing market share.

There is a discontinuity here.

But it is also very clear,...the sheer mass,...the investment,...the involvement between suppliers and the traditional Big Three can only lead to one conclusion.

Our futures are inexplicably tied, and neither can afford the other to fail.”

Tim Leuliette, President/CEO of Metaldyne, August 12, 2002



Examples of trust-reducing activities

- Suppliers develop design proposals, OEMs send their plans around to get competitive quotes
- OEMs demand immediate 5% price cuts
- OEMs abruptly change policy and make suppliers responsible for tooling cost
- OEMs run reverse auctions in which aggressive bids pushing prices lower can't be verified later as coming from legitimate suppliers
- Supplier quality problems on major components/ subsystems are perceived by public (and in legal liability cases) as OEM responsibility



Quotes from Executives

- "This industry used to be fun. Everyone was excited about the products, about the growth and change in the industry. Now we meet with our customer and you leave feeling beat up. It's no fun anymore. I can't encourage young engineers to come into our industry." *Supplier CEO*
- "We got rid of all of our parts estimators. These were the guys who understood how parts were made, inside and out, so they could evaluate a supplier's price proposal. This gave us some reality base for price negotiations. Without them, it's all tough guy posturing." *OEM executive*
- "I never realized exactly how rough the purchasing process can be on a supplier. They [OEM] can be really nasty. Plus their purchasing people try to keep our engineers from talking to their engineers." *Supplier CEO who previously was senior OEM executive*



Survey of Small-Medium Enterprises Provides Evidence of These Patterns

- **Benchmarking Questionnaire**
 - 615 plants responded to survey conducted by Michigan Manufacturing Technology Center in spring 2003
 - Highly detailed survey asks about revenues, costs, operations
 - Respondents are presidents, CFOs, plant managers
 - Low response rate (~10%), but no bias in size, productivity
 - Michigan is overrepresented; South is underrepresented
- **Relationship Questionnaire**
 - Survey sent to plants who answered benchmarking questionnaire by Helper et al.
 - Asked about sources of ideas; relationships with customers, suppliers, rivals
 - 65% response rate; 244 firms in our sample.
- Survey data linked to US Census Zip Code Business Patterns for 2000.



Collaboration without Trust Pattern Emerges Clearly

PRELIMINARY RESULTS	Exit	Collaboration w/o Trust	Voice
<i>Cluster Size (of 185 cases)</i>	20,7%	41,8%	37,4%
They provide us with lots of process design ideas	57,7%	77,4%	86,5%
They know the details of our processes	0,4%	27,7%	31,0%
We provide detailed cost info	24%	77%	59%
They are open to our suggestions for design changes ... that reduce cost	5,8%	22,6%	36,5%
They have helped us meet or beat a competitor's bid	39,9%	63,9%	82,7%
We are confident that information shared with them will not be shared with competitors	40,9%	26,5%	77,7%
We share our confidential ideas with them	28,3%	23,7%	60,4%
We are confident they will treat us fairly	23,0%	11,4%	84,3%
We have been asked to lower prices, but have refused	48,8%	78,2%	57,4%
We have refused to quote, despite similar experience on other jobs	40,4%	99,9%	74,0%



Case studies

Three cases:

- Evolution of collaboration with trust in Japan (Toyota vs. Nissan)
- Stoneridge (Tier 2 supplier struggling to survive)
- Delphi (large Tier 1 supplier implementing Toyota approach to supplier relations)



Supplier relations in Japan

- Toyota: Intensified design collaboration with suppliers to reduce cost
 - New CEO earns reputation from management of supply chain
 - CCC21: 30% cost reduction via target cost management system, collaborative co-design
 - Next phase: From components to “systems” (modules?)
- Nissan: From “voice” to “exit” and back again (hybrid?)
 - Equity stakes in *keiretsu* suppliers sold to generate capital for product development
 - Great reduction in parts purchases from in-house/*keiretsu*
 - Many new suppliers in U.S., but major quality problems at launch
 - Now taking equity stakes again, talking about renewed collaboration



Survival Strategies at Stoneridge

(Presentation by CEO, IMVP Sponsors' Meeting)

- Leading supplier of highly engineered, application specific, electrical and electronic products and systems to automotive and commercial vehicle OEM's
- Approximately \$682 million in annual sales *(as of 2005)*
- Operates 26 manufacturing and technical facilities in 12 countries around the world *(as of 2005)*
- 6,000 employees *(as of 2005)*



Our Customers Continue To Ask For Concessions:

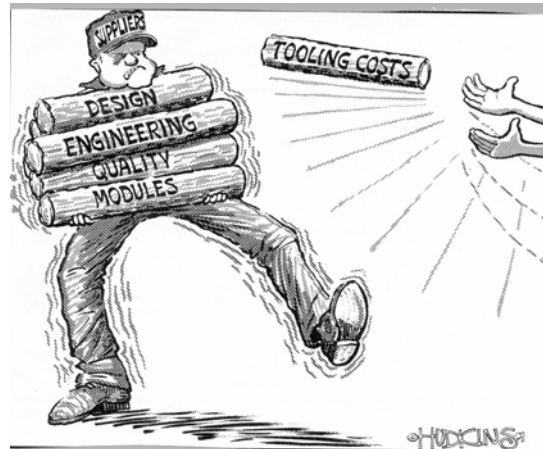
(source: COO of Stoneridge)

- Price reduction exceeding contract terms
- Program management
- Inventory management
- Warranty indemnification
- Plant variance charge back
- E-Business cost absorption
- Pro bono R&D and prototypes
- Front end award rebates
- Waivers of standard contract terms
- Rights to intellectual property
- Supplier owned tools
- Longer payment terms

Without Long Term Commitment



Our customer's financial returns are inadequate, therefore, our economic situation is of no concern to them - It's All About Survival (source: COO of Stoneridge)



Survival Strategy

 (source: COO of Stoneridge)

- ✓ **Promote lean production** in manufacturing and design; **not sufficient to differentiate us but needed to stay in the game.**
- ✓ Understand customer needs well, **differentiate products to offer unique value.**
- ✓ **Manage product life cycle carefully.** Add new features at technology inflection points. Remove products before they become commodities.
- ✓ Remember we are operating in a global industry -- **sell to customers globally to build volume, source globally for cost** and to be ready for future demand. Joint ventures reduce financial risk.
- ✓ Monitor all investments to insure adequate returns, **don't neglect profits in pursuit of revenue growth**, keep balance sheet unleveraged
- ✓ Manage our suppliers according to lean principles, focus on "best in class". **Work to develop our supplier capabilities**, encourage global orientation
- ✓ **Maximize our internal learning**; consultants as trainers plus centralized corporate training, get our best practices into all plants



Implications of Stoneridge case

- Even with survival mentality, most strategies involve collaboration
 - Joint venture partners
 - Stoneridge's suppliers
 - Internally, across divisions and plants
- Helper and Stanley (2004) survey of 2nd and 3rd tier suppliers
 - 37% say “my firm receives technical assistance from competitors”
 - 17% say “my firm receives technical assistance from customers”
- Overall self-protective stance vis-à-vis U.S. customers
 - Stay ahead of commodity pricing pressures, phase out products
 - Avoid commitments that build revenues/volume but hurt ROI



Toyota Comes to Delphi: Background

- “Lean” chosen as high strategic priority, development of Delphi Manufacturing System
- Several high-ranking Toyota Production System experts hired, plus executives from Honda
- Seek business from Toyota in order to learn more about lean; Toyota wants this too
- Make Delphi's own plants lean, help create lean suppliers, focusing on 300 core Tier Two firms



Introducing Toyota's "Cost Management"

- Interdependent Process Routines at Purchasing (Governance) Level
- Delphi frames this to suppliers as a paradigm shift
- Suppliers told what cost management is not...
 - Not one-time cost-down method
 - Not a tool to squeeze suppliers to lower price
 - Not a way to share suppliers' proprietary data
- And what cost management is:
 - Based on "realities" (actual material choice, yield, labor requirements, machine choice and use, etc.)
 - Pursues both short-term (*kaizen*) and long-term (design) opportunities for cost improvement



Cost Management Terms

Supplier Cost

- Price based on either part specification or supplier cost information

Agreed-To Cost

- New price generated by improving realities to move closer to the Ideal Cost

Ideal Cost

- Lowest obtainable total cost in the world that is theoretical, robust, and achievable with effort

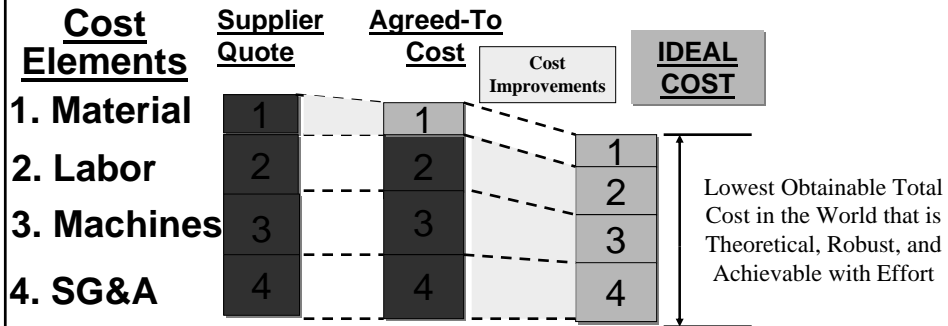
Cost Standard

- Based on exhaustive study of competing products currently being sold plus detailed assessment of current future material/commodity prices

Source: Delphi Corporation



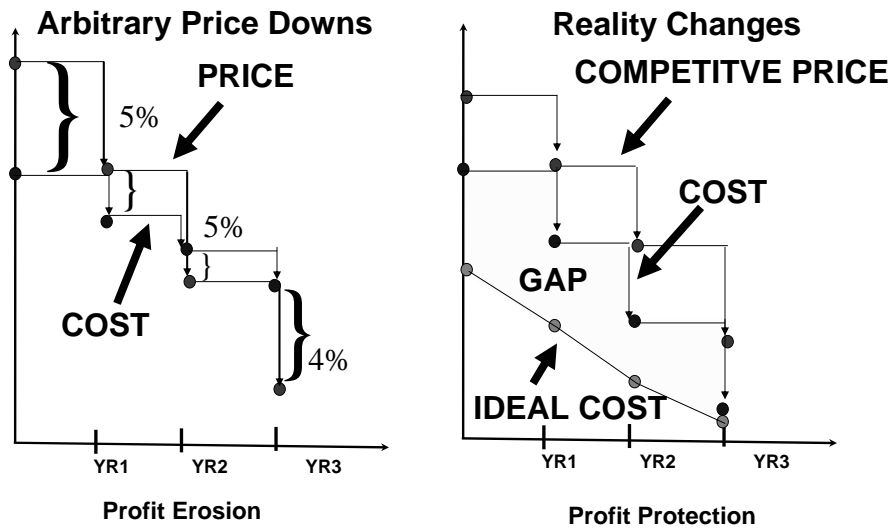
Iterative Process to Reach Ideal Cost



Source: Delphi Corporation



Process Paced by Real Cost Improvements



Source: Delphi Corporation

Creative Improvement Plan Document

Microsoft Excel - Creative Improvement Plan DRAFT 10-20-2003.xls

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DELPHI				Creative Improvement Plan				Commodity Team Name Here				Date		Version # 1	
Creative Improvement Plan Part Information								Creative Improvement Plan Champions							
Part Number								Delphi Buyer				Signature Block			
Part Description								Delphi Cost Leader				Signature Block			
Current Price								Delphi Commodity Team Leader				Signature Block			
Supplier								Supplier Champion1				Signature Block			
Supplier Mfg. Location								Supplier Champion2				Signature Block			
Creative Improvement Plan Cost Savings Goals															
LINE#	CREATIVE IMPROVEMENT IDEA (attach drawings, pictures, or any other relevant information if necessary)	CURRENT STATE PIECE COST a	FUTURE STATE PIECE COST b	DELPHI SAVINGS SHARING % c	POTENTIAL DELPHI PIECE COST SAVINGS OPPORTUNITY d = (a - b) * c	PIECE COST SAVINGS BREAKDOWN (sum must = d)				LUMP SUM TOOLING IMPACT	TARGET IMPLEMENTATION DATE	PART P.O. CHANGE EFFECTIVE DATE	CHAMPION		
						Material	Finished Parts	Labor	Material/Process/Factory Tooling						
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Implications of Delphi case

- Cost management process reframes relationship with supplier -- aims to establish trust at governance level
 - Opportunity rather than threat
 - Norms of reciprocity, long-term commitments reduce opportunism
 - Knowledge-intensive dialogue to reach “agreed-to” cost
 - Ongoing pursuit of “ideal cost” avoids inertia, maintains competitive dynamic (dual sourcing)
- Unanswered questions:
 - How do suppliers perceive this shift?
 - What impact of exit legacy?
 - Can Delphi continue to implement cost management given negative effects of bankruptcy on supplier relationships?



Can Collaboration Without Trust Persist?

- Short-term: Yes
- Medium-term: Depends on:
 - Rate at which suppliers can replace Collaboration w/out Trust customers
 - Bargaining power of suppliers for any particular component/subassembly
 - How much collaborating engineers can be buffered from tensions at governance level
 - How much pressure OEMs feel to improve supplier relations at the governance level
- Long-term: No



Signs of Change

- GM announces that target costs adjusted by component rather than across-the-board mandatory cost cuts
- Ford announces reduction in # of suppliers, closer working relationship to reduce costs
- Major investments in U.S. suppliers by private equity investors, anticipating consolidation and better profit prospects

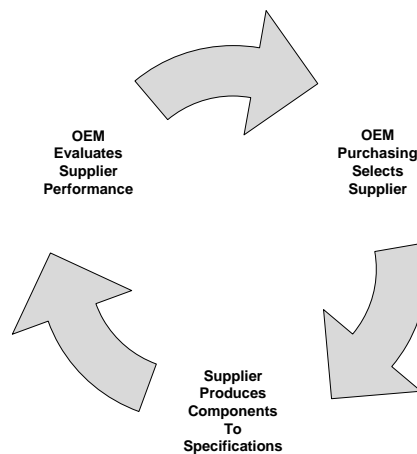


Shifting Knowledge Boundaries

- Recent outsourcing notable for shifting more knowledge work (design tasks) to suppliers
- Poses dilemma -- what knowledge does the firm need to retain and what can it relinquish?
- Expectation by some OEMs that modularity would reduce coordination requirements with suppliers and allow OEM engineering resources to shrink
- Expectation challenged by research finding that: **“firms need to know more than they make”**
- All automakers, regardless of supplier relations legacy, need to figure out where to draw knowledge boundaries

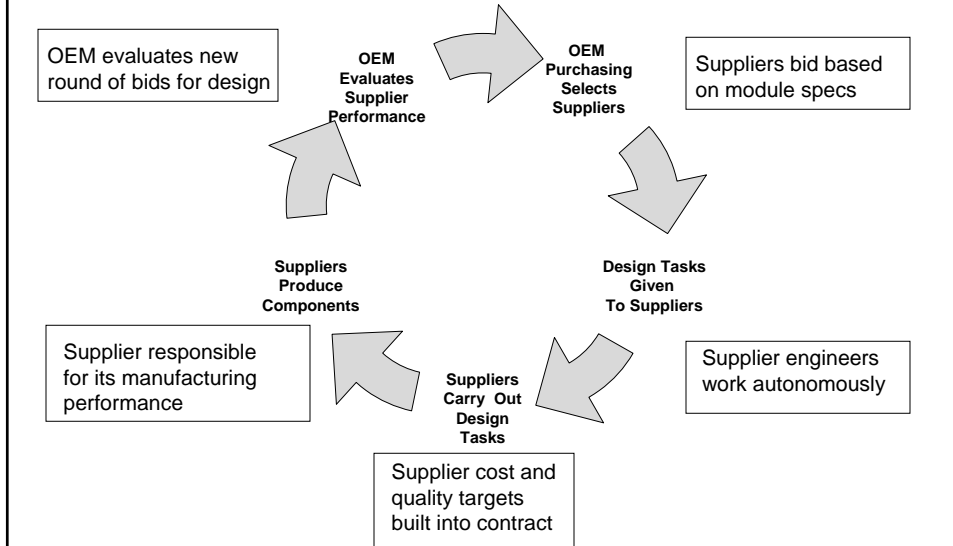


When Only Manufacturing is Subcontracted, Knowledge Management Is Simpler

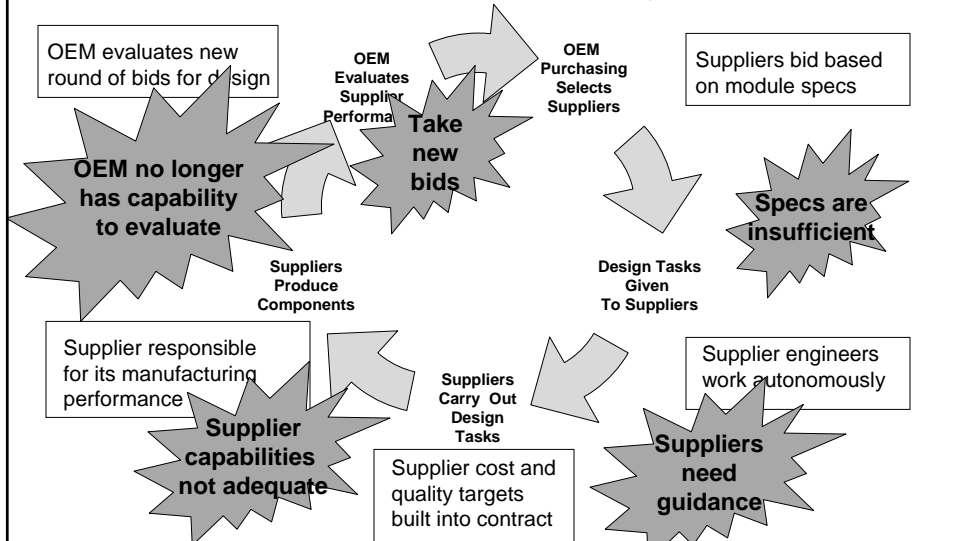




With Modules and Outsourcing of Design, OEMs with Exit Legacy Expected Less Coordination Needed

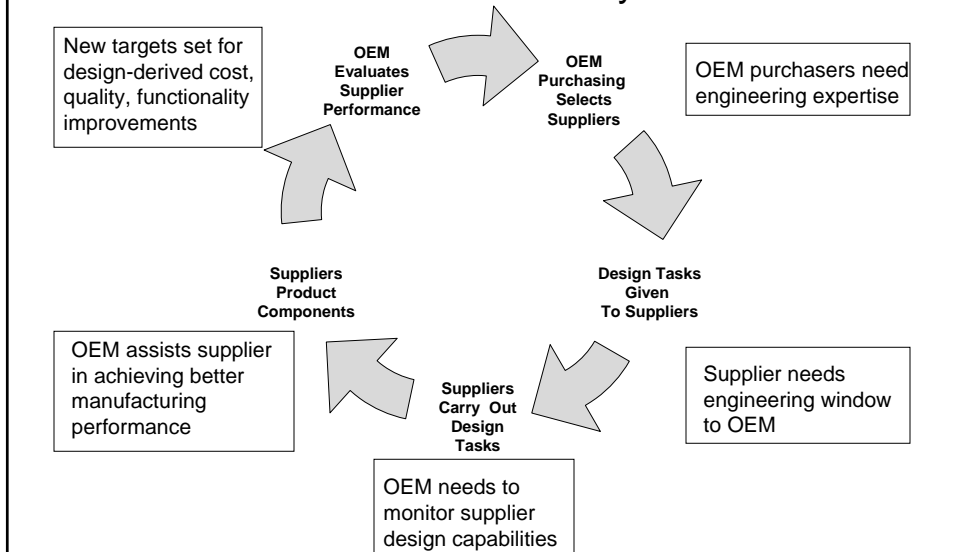


But Coordination Requirements and Need for OEM Capabilities Actually Increase

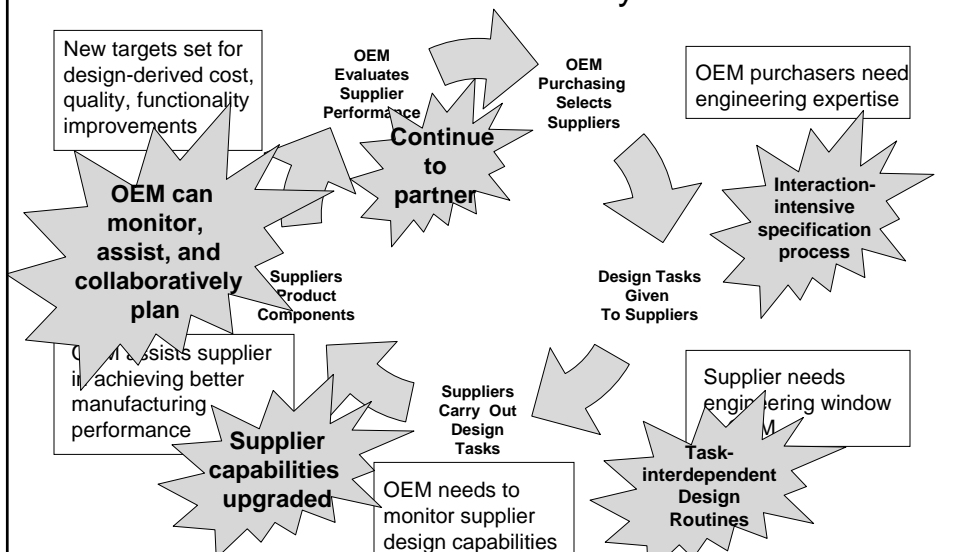




In Hybrid Collaborative Mode, All OEMs Need To Know More Than They Make



In Hybrid Collaborative Mode, All OEMs Need To Know More Than They Make





Implications for U.S. Automakers and Suppliers

- “Collaboration with trust” approach used by Japanese companies is preferred by U.S. suppliers
- U.S. automakers have a lot of work to do to reestablish trust at governance level
- Interdependent process management routines associated with purchasing (e.g. Toyota’s “cost management”) needed to establish basis for greater trust
- Purchasing agents also need engineering background, different training, different incentives
- U.S. automakers may need to rebuild capabilities to oversee outsourced design activities effectively



Conclusions

- Collaboration between OEMs and suppliers on design more frequent - and necessary - than ever
- Task level: Co-design activities via interaction-intensive processes = effective collaboration
- Governance level: Cost pressures + “exit” legacy = collaboration without trust
- Prediction: Collaboration w/out trust persists in short term, fails in long-term. Medium-term: governance reforms?
- Under hybrid collaborative mode, firms need to “know more than they make”