

# Automotive Supply Chains and E-business: Co-evolution and the Shape of the Future

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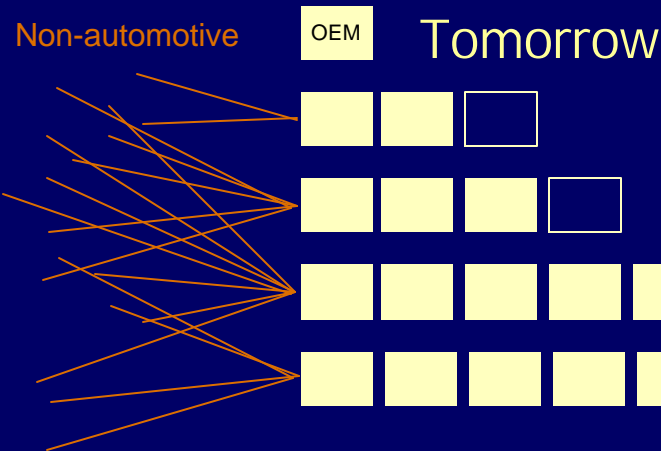
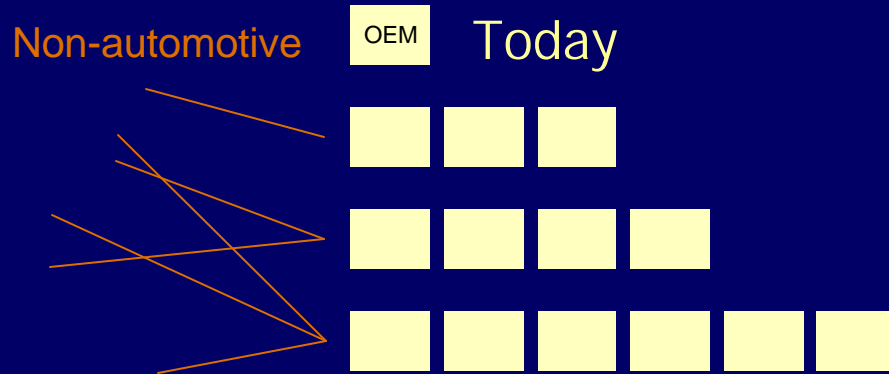
Our Supply Chain Research Program

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# E-business Must Support Automotive Industry Business Drivers

- Time and money
  - Shorter design time “12 month car”
  - Shorter order fulfillment “7 day car”
  - Less labor “10 hour car”
- Supply chain activity, structure
  - Fewer 1<sup>st</sup> and 2<sup>nd</sup> tier suppliers
  - More complex components
  - More diverse information environments
  - Non-traditional material, technology
  - More work outside traditional automotive sector

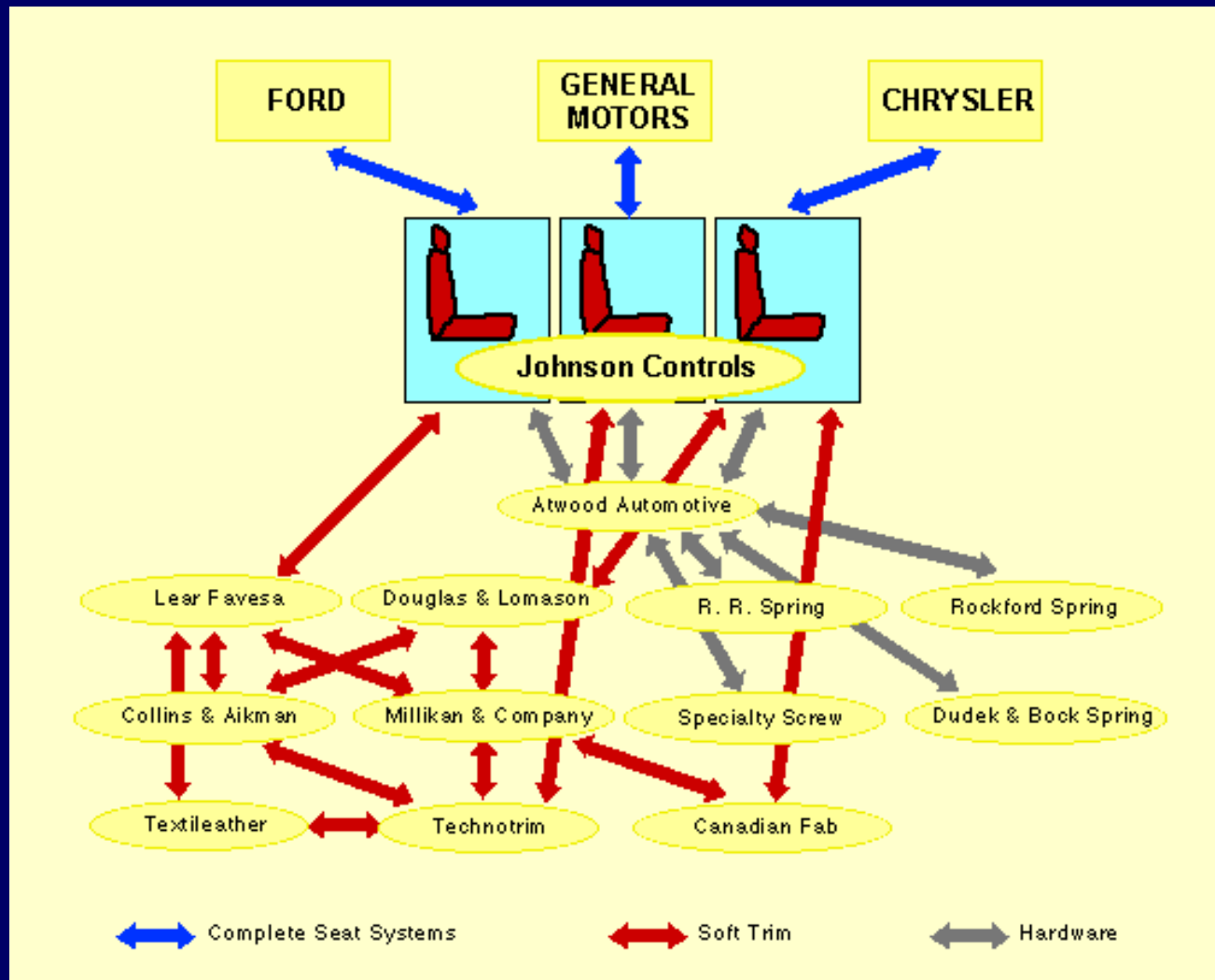
# Supply Chains, e-business Co-evolve as Industry Adapts to Business Climate



By querying first-tier suppliers, what can we learn about:

- Trends in supply chain structure
- Where e-business is going
- Ability of lower tier suppliers to do e-business

# For System-wide Improvement, E-business Must Support a Complex Set of Trading Relationships



AIAG Manufacturing Assembly Pilot, 1997 <http://209.186.190.204/map/>

# Respondent Background

Focus group  
interviews

3 tier-1 system integrators

Survey responses

- 16 tier-1 suppliers
- \$70.2B total sales
- \$4.4B average sales
- 1303 average # of suppliers per respondent

# Push is on for E-business

Reduce suppliers w/in next 12 months?	<b>77%</b>	
% reduction?	<b>21%</b>	
Importance of doing e-business with suppliers*	Today	In 2-3 years
demand planning, mgmt	<b>2.4</b>	<b>3.4</b>
engineereing design	<b>2.5</b>	<b>3.2</b>
procurement	<b>2.9</b>	<b>3.5</b>
		*4 point scale 4= required for success
Select suppliers based on ability to do E-biz with <i>their</i> suppliers		
today	<b>15%</b>	
2-3 years	<b>77%</b>	

# What is the Industry Expecting from E-business?

Capital spending share for e-biz with suppliers	Today	2-3 years
	3%	13%
Cost reduction impact of e-business?	Today	When e-biz plans implemented
engineering, product design	4%	18%
procurement	7%	16%
quality assurance	3%	19%

# What is the Industry Expecting from E-business?

<b>What % of your suppliers will you do E-business with?</b>			
	Today	2 - years	difference
<i>Procurement of production parts</i>			
Request for bids/proposals	25%	76%	51%
Catalogues - search suppliers general catalogue	9%	45%	36%
Catalogues - search based on specially negotiated prices	3%	41%	38%
Reverse auctions	4%	34%	30%
<i>Collaborative Engineering</i>			
Send, receive interoperable CAD files	25%	73%	48%
ECNs - transmit, version control, tracking	18%	72%	54%
Joint product design	12%	63%	51%
Maintain a common data base	7%	58%	51%

# What is the Industry Expecting from E-business?

	Today	2 - years	difference
<i>Demand Planning and Management / or Inventory Management</i>			
Computer to computer communication between you and your supplier	41%	85%	44%
Send orders and releases	33%	81%	48%
Receive advance ship notices	30%	77%	47%
Track shipments in transit	27%	76%	49%
Checking parts availability	0	66%	62%
Just in time	23%	63%	40%
Vendor managed inventory	12%	59%	47%
Computer to human communication - automated on your end	27%	51%	24%
Observe your suppliers' inventory or production schedules	0%	49%	49%
Observe your suppliers' suppliers inventory or production schedules	2%	40%	38%

## What % of Your Suppliers are Capable of Doing E-business?

	Today	2 - 3 years	Difference
Computer to computer communication - automated on both ends	49%	78%	29%
Computer to human communication - automated on your end	29%	56%	27%
CAD interoperability or similar CAD systems	28%	63%	35%
Production planning	23%	70%	47%
Logistics / order tracking	18%	66%	48%
Integration between data sent to suppliers and their internal systems	15%	59%	44%
Catalogue pricing	15%	54%	39%
Finished goods inventory	14%	63%	49%

# What are the Hurdles to E-business Among Your Suppliers?

What are the hurdles to e-business among your suppliers?		Impact*
Conflicting e-business demands		
	companies within auto	2.5
	companies outside of auto	2.1
Human resources		
	staff skills	2.5
	outside help	1.6
	leadership	2.3
Technology		
	supporting applications	2.5
	supporting hardware	2.2
Cost		3.0
Hesitation before the unknown		2.7

\*4 point scale, 4 = most important

# Hurdles Based on Concern About Industry Portals

	Level of Concern*
Security of posted information	2.7
Assurance of site longevity	2.5
Cost	2.5
Technical issues in maintaining interfaces	2.5

\*3 point scale, 3= most important

- E-business:

- technology + business process = a greater range of business models for dealing with trading partners
- trades inventory for information, increases affordability, reliability of tight and loose coordination

Requires highly synchronized flow, large amounts of complex information.



single point management

vendor managed inventory

Requires assured communication with many potential bidders

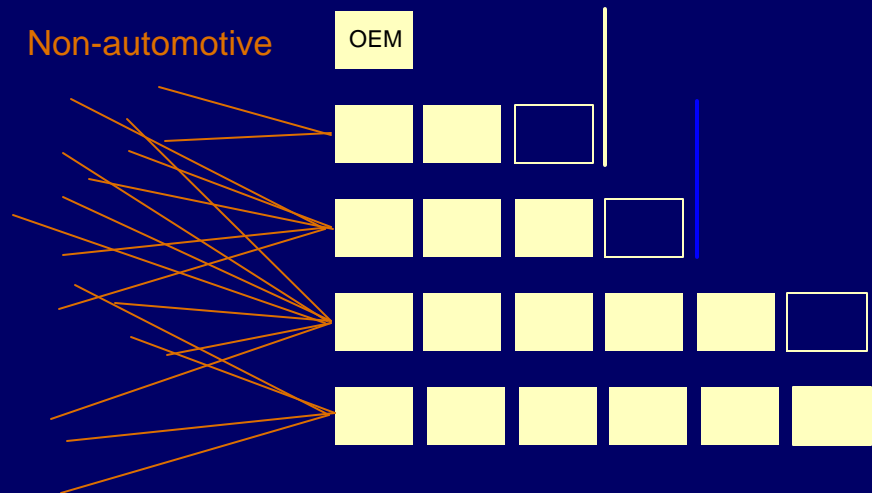


bidding, negotiating with known suppliers

spot buy, open market

# Can E-business Help the Automotive Industry Meet its Business Challenges?

"We have 80 ERP systems. We bought the best EB functionality from A, B, C solution providers. It was *very* hard to get all the systems to talk to each other."



- ✗ single industry
- ✗ captive suppliers
- ✗ high customer bargaining power
- ✗ strong business case for interoperability
- ✗ suppliers sell to multiple industries, customers
- ✗ low buyer power to dictate data exchange terms
- ✗ weak business case for interoperability

- Will wide-scale interoperability be affordable?
  - standards
  - translation technology/services
- How far along the product life cycle will the business case for interoperability extend?
  - design
  - production
  - sales
  - post-sales
- How will consolidation or partnerships in the EB industry affect
  - cost
  - defacto standards
  - Functionality
- How will the buying power of the automotive sector affect EB vendors?
- What strategic partnerships will develop between auto and EB?

This presentation emerges from our research program which explores the impact of electronic business on supply chain structure and behavior

- Interoperability needs
- Impact of enterprise integration and the need for standards
- Product data quality
- Autonomous agents and emergent behavior
- Best practices
- Single point management
- Metrics and evaluation