

# Factors Influencing Suppliers' Participation in the Private Electronic Markets



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# Motivation of the Study

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- Changes in B2B market
- Need to Understand adoption factors in the emerging private B2B market



# Changes in B2B market

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- Different Types of B2B markets
- Net Marketplaces (also referred to as exchanges or hubs) assemble thousand of sellers and buyers in a single digital marketplace on the Internet
  - Independent–intermediaries
- 1: M market:
  - Supplier–oriented (e.g. IBM, Dell)
  - Buyer–oriented (e.g. GM)
- Consortium
  - extension of 1:M (e.g. Covisint)

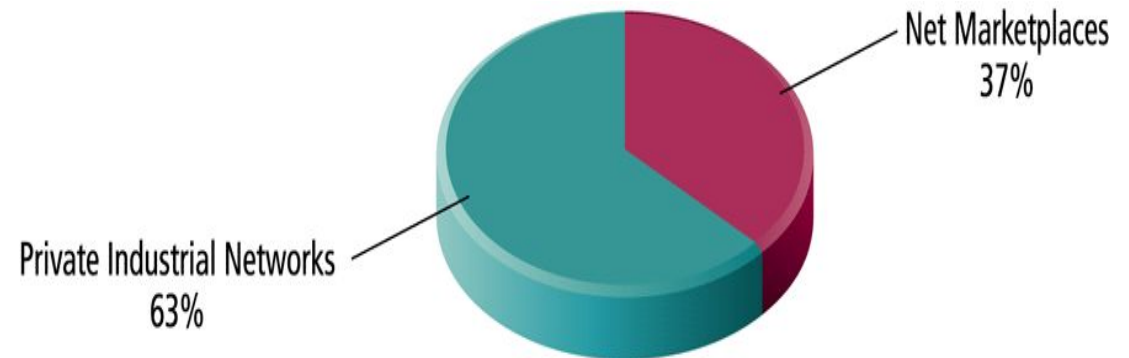


# E-Hubs (HBR May-June 2000):

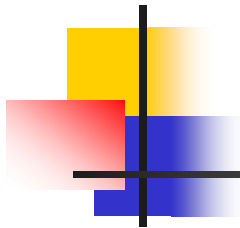
	<b>Operating Inputs</b>	<b>Mfg Inputs</b>
<b>Spot Sourcing</b>	<b>Yield Mgr Employease Auction.com</b>	<b>Exchange E-steel, PaperExchange</b>
<b>System Sourcing</b>	<b>MRO Hubs Ariba, Bizbuyer.com</b>	<b>Catalog Hubs Chemdex, PlasticsNet.com</b>

# B2B and Trend

- Trend in B2B
  - More private B2B



- More industry consortia



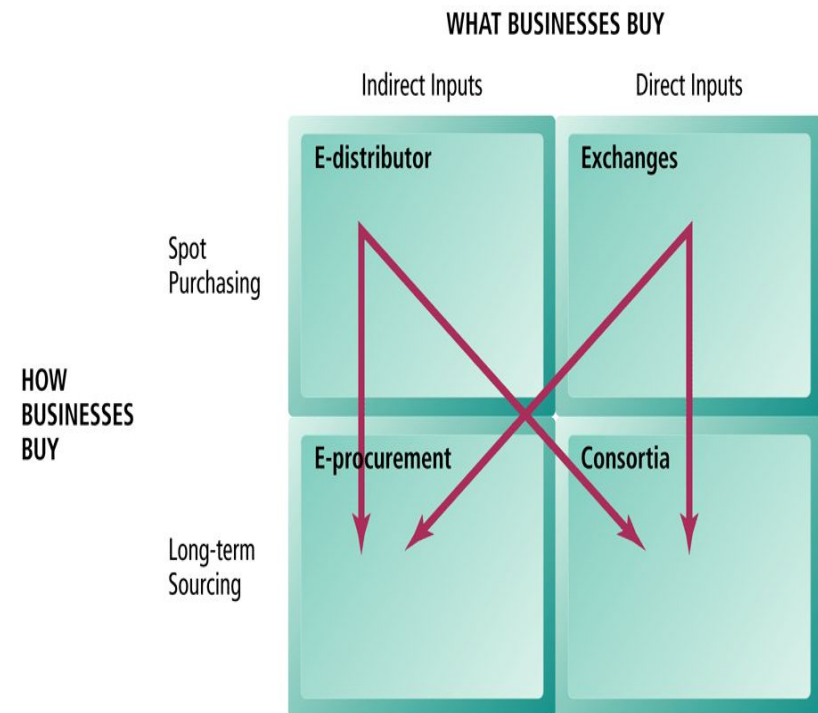
**TABLE 12.6 INDUSTRY CONSORTIA BY INDUSTRY (NOVEMBER 2000)**

INDUSTRY	NAME OF INDUSTRY CONSORTIA
Aerospace	Aerexchange.com; Cordiem.com; Exostar.com
Agriculture	Rooster.com
Automotive	Covisint.com; SupplyOn.com
Chemical	AllianceChem.com; Elemica.com; ChemConnect.com; RubberNetwork.com; ElastomerSolutions.com; Omnexus.com
Computers, Consumer Electronics, and Telecommunications	e2open.com; eHITEX.com
Construction	Mercadium.com
Consumer Products	RetailersMarketXchange (rmx.com); Transora.com; GlobalNetXchange (gnx.com); WorldWideRetailExchange.com; UCCnet.com
Energy and Utilities	Pantellos.com; Enporion.com
Engineering	ec4ec.com
Financial	MuniCenter.com
Food	CPGmarket.com; Dairy.com; Electronic Foodservice Network (eFSNetwork.com); FSXchange.com
Hospitality	Avendra.com
Legal	LawCommerce.com
Medical Services, Supplies	Global Healthcare Exchange (ghx.com); HealthNexus.com
Metals and Mining	WorldMetal.com; The Global Steel Exchange (gsx.com)
MRO	CorProcure.com
Manufacturing	ManufacturingCentral.com
Oils and Metals (Trading)	IntercontinentalExchange.com
Paper and Forest Products	ForestExpress.com
Petroleum	Trade-Ranger.com; Pepex.com
Real Estate	ConstellationRealTechnologies.com
Shipping	LevelSeas.com; OceanConnect.com
Textiles	TheSeam.com (Cotton Consortium)
Transportation	Transplace.com

SOURCE: Jupiter Media Metrix, 2000b; www.nmm.com, 2001.

# B2B and Trend (Cont'd)

- Participants have come to realize the real value of B2B commerce will only be realized when it succeeds in changing the entire procurement system, supply chain, and the process of collaboration among firms





# Need to Understand Adoption Factors

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- The Major Problem
  - Building Critical Mass early
- Similarities with EDI adoption
  - Buyer-oriented
  - Asymmetric advantages to buyers (negative externalities to suppliers)






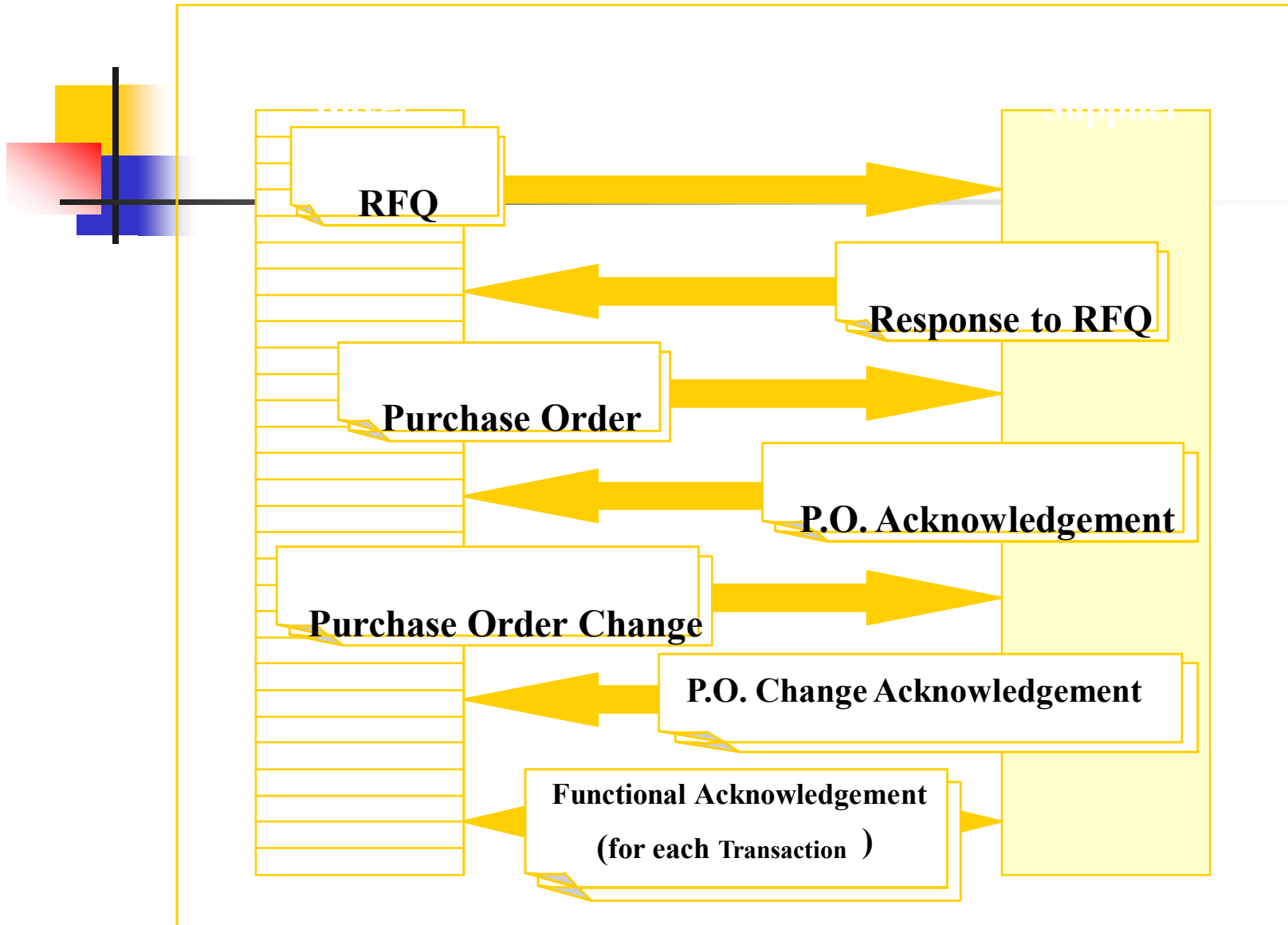
# Differences with EDI

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- Supplier side
  - Less Cost of adoption
  - Less Asset-Specific Investment
  - Lower switching cost
- Buyer side
  - Potential of stronger vertical Integration



Type of EDI	Message per Month		
	100	1,000	25,000
Traditional EDI	\$100	\$877	\$14,000
Via a VAN	\$156	\$1091	\$25,000
Internet-based EDI	\$49	\$199	\$1,920





# Hypotheses Generation

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- Incomplete contract theory
  - Two different types of contract costs (ex ante and ex post)
    - Contract completeness: the degree to which the obligations of the exchange are outlined upfront
    - Nearly complete contract: more ex ante contract cost
    - Relatively incomplete contract: less ex ante cost, more flexibility but more greater potential opportunism, requiring costly ex post bargaining



# Hypotheses Generation (Cont'd)

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- Ways of increasing ex post bargaining power of suppliers
  - Promised limited number of participating suppliers
    - H1: The number of suppliers who are expected to join the e-market has a positive effect on suppliers' participation
  - Promised subsidiary to suppliers for the investment (Baura and Lee, 1997; Clemons et al., 1993; Hess and Kemerer, 1994; and Subramani and Walden, 2000)
    - H2: The level of subsidiary that the suppliers expect from the buyer has a positive effect on suppliers' participation



# Hypotheses Generation (Cont'd)

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- Through the bargaining power of the buyer (power and trust)
  - Power is defined as a function of dependence on others
    - H3: The level of suppliers' dependency on the buyer has a positive effect on suppliers' participation
  - Trust is defined as committing to an exchange before you know how the other person will reciprocate (Knez 1996)
    - H4: The level of suppliers' trust in the buyer has a positive effect on suppliers' participation



# Research Method

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- Sample:
  1. Food process mfger, with 150 active suppliers, and collected 62 (41.3%)
  2. Major electronic mfger, with two different supplier groups (A and B), and collected 66 from A and 47 from B
- Instrument Development: 4 Ivs and one Dv (intention)



# Data Analysis

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- Initial statistics

	Food	Elec-A	Elec-B
Number of employees	67 (10.8)	236.5	145
Length of partnership (years)	4.1 (2.3)	13.4	11.07

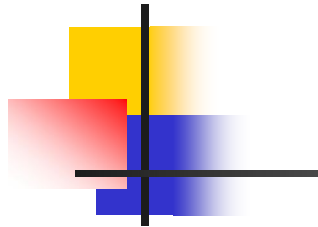




# Construct and Measurement

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- Control variables:
  - Size of suppliers and years of the relationship
  - Dep: Intention to join
  - Indep: # of suppliers, level of subsidiary (system support, education and training: 0.81), dependency (specific investment, rev. portion & # of available alternative suppliers: 0.61), and trust



Construct	Variables & Sources	$\alpha$
Trust	Buyer's understanding of supplier's business process (Hart and Saunders, 1997)	.7608
	Information share (Hart and Saunders, 1997; Smeltzer, 1991 )	
	Buyer's interest in suppliers' new idea about their products (Hart and Saunders, 1997; Smeltzer, 1991)	
	Reliance on buyer's secrecy (Smeltzer, 1991)	
	Fulfillment of promise by a buyer (Hart and Saunders, 1997; Zaheer et al., 1998)	

Measurement for Trust



# Results

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- Food processor Manufacturer
  - R-sq change (from 0.06 to 0.27\*\*)
  - Subsidiary ( $t=1.7^*$ ) and N\_of\_suppliers ( $t=-2.5^{**}$ )



# Electronic Manufacturer

	Comb	R <sup>2</sup> =.16		A-Gr	R <sup>2</sup> =.21		B-Gr	R <sup>2</sup> =.34	
	Beta	t	Sig.	Beta	t	Sig.	Beta	t	Sig.
Constant		5.81	.000		2.24	.029		7.23	.000
Suppliers	-.204	-2.04	.044	-.065	-.492	.625	-.065	-3.46	.001
Subsidy	.229	2.23	.028	.280	1.98	.053	.280	.330	.743
Depen	.056	.524	.602	.109	.771	.444	.109	.021	.983
Trust	-.035	-.340	.734	.098	.736	.465	.098	-1.30	.202

(From Lim, Seong B. 's Dissertation)

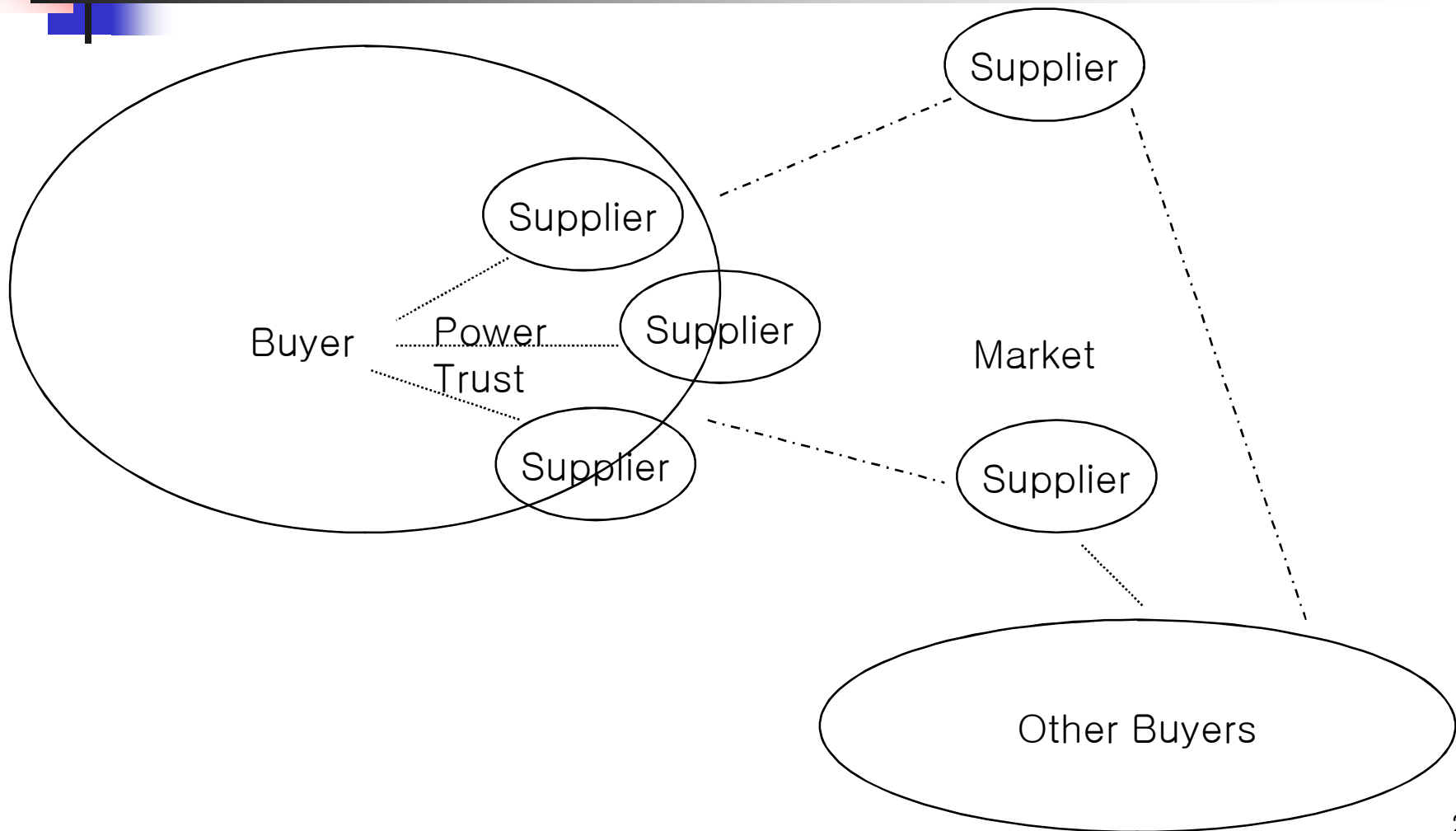


# Implications

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- The number of expected suppliers is a significant factor
- The level of subsidiary still an important factor
- The market power of the buyer is not
- Not significant result of trust indicates that the suppliers perceive different markets as they move into E-market – it is a great concern to the suppliers and need to be addressed more carefully

# Relationship Change





# Limitations

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- Measurement
  - Single response
  - Some construct operationalization
    - (e.g. #of suppliers expected to enter)
  - Intention
- Sampling
  - Convenient sample
  - Non-response bias



# Future Research

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- Increase the number of samples
- Under different industry: degree of environmental uncertainty and availability of alternative suppliers
- Ways to incorporate the vertical integration factors