

# Portfolios of Exchange Relationships: An Empirical Investigation of an Online Marketplace for IT Services

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# Online Markets for Professional Services

## Scope

- IT services (software development, web design)
- Graphic design, accounting, tax consulting, translation, etc

## Leaders

- Rent A Coder (RAC), Elance Online, eWork

## Growth

- 14,000+ IT projects DONE via RAC in August 2006; 60% growth on year
- 100,000+ businesses got quotes via Elance in 2005

# Elanca – Auctions & Bids

The screenshot displays the Elanca Marketplace interface. The main header includes the site name and navigation links. A search sidebar on the left allows filtering by closing dates, listed dates, and budget. The main content area shows a list of projects under the 'Website Development' category, with 426 projects open for bidding. Two projects are highlighted:

- Heed an 'EXPERT' HTML, PHP, CSS coder. No Exceptions!** (Web Programming) - Budget: Not Sure, 2 bids, posted 11/23/2005 4:30 AM, 6 days, 22 hours left.
- Refresh of existing mysql database driven ASP site** (Web Design & Development) - Budget: Prefer not to disclose, 5 bids, posted 11/23/2005 2:35 AM, 6 days, 20 hours left.

An inset window shows the 'Bidding Details' for a selected project:

- Attached Files: SBN website functionality v2.0\_Elanca.doc
- Market Notes: Bidding Details
- # of Bids: 4
- Average Bid: US\$741.75
- Project Posted on: 11/23/2005 04:21 EST
- Bidding Ends: 6 d, 22 h+ (Ends: 11/30/2005 04:21 EST)

The 'Bids Placed' section shows a table of bids:

Actions	Service Provider	Location	Bid Amount	Last 6 months Feedback Reviews Earnings	Total Feedback Reviews Earnings	Status
	<b>ITExchange</b> Portfolio	India,UK, US	US\$900.00	4.0 31 reviews \$504.96	4.9 115 reviews \$192,667	Placed Bid
	<b>etresium</b> Portfolio	MH, IN	US\$750.00	5.0 14 reviews \$11189	5.0 31 reviews \$21075	Placed Bid
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	<b>softmaxs</b> Portfolio	Ternopil, UA	US\$567.00	4.7 1 reviews \$2277	4.7 22 reviews \$26,218	Placed Bid

Each bid entry includes a 'Bidder Comments' section with details on when the bid was accepted and the bid time.

# How Online Markets Work

1. Register as a buyer in 5 minutes
2. Describe your project (e.g. website)
3. Start your auction
4. Get 10-20 bids from providers all over the world
5. Evaluate bids
6. Select the winner
7. Manage your supplier; get the project done
8. Pay and rate your supplier
9. One more project? Go to step 2...



## This Study: Focus on Two Main Themes

Buyer-supplier relationships: short-term (transactional exchange) vs long-term (relational exchange)

(Dyer et al., 1998; Ganesan, 1994)

Use of exchange mechanisms: reverse auctions vs bilateral negotiations

(Carter, Kaufmann, Beall, & Carter, 2004; Jap, 2003; Smart & Harrison, 2003)



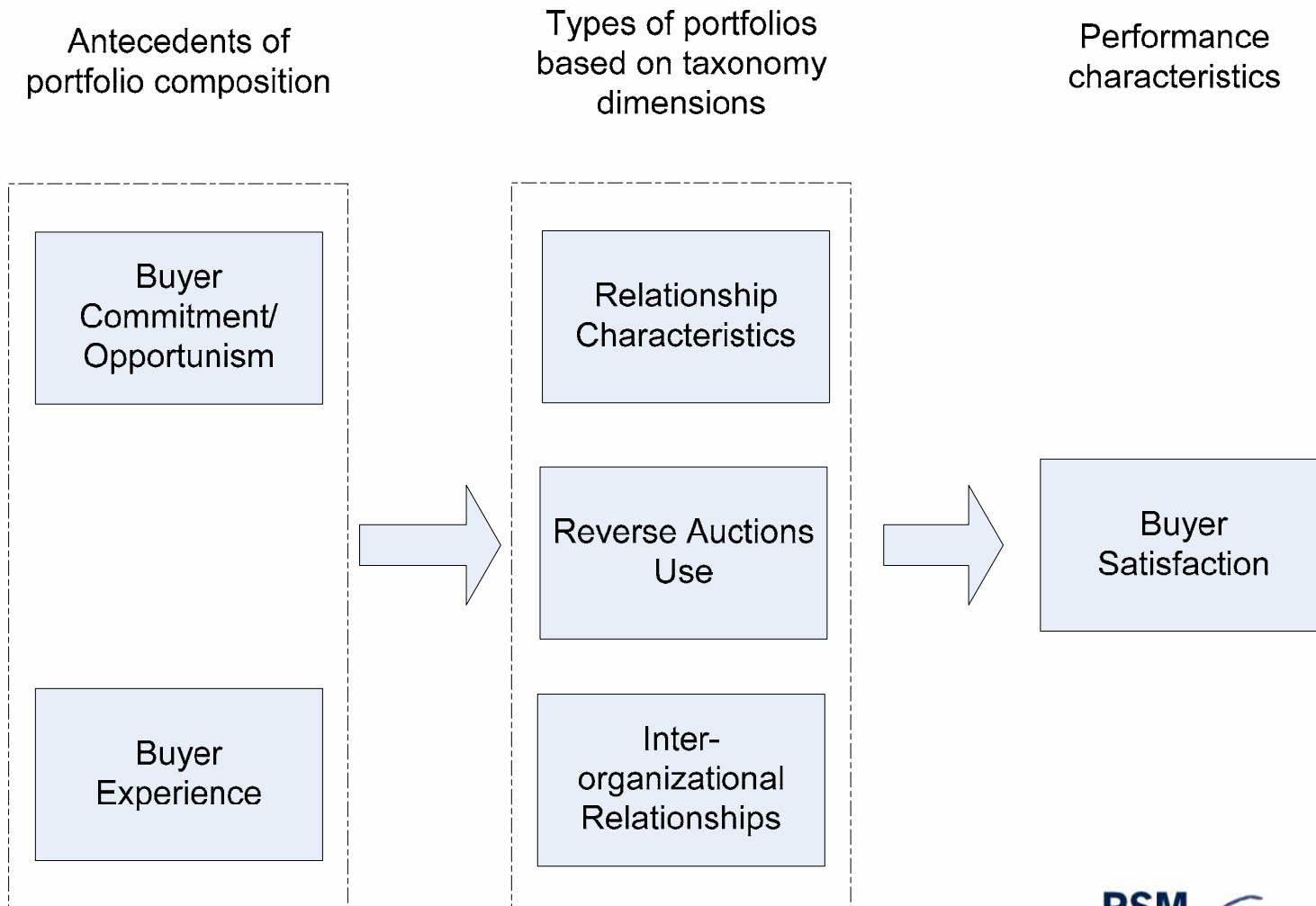
# Theoretical Background / Research Question

- Starting point: relationships in market settings → cooperation and competition co-exist
- Buyer-supplier ties: moving beyond dyadic ties to the portfolio (ego-network) level
- Research question: What types of buyer ego networks are formed at online IT marketplaces for small firms and what are the properties of these types?

# Methodology

- Type of investigation: exploratory, inductive
- Approach: empirical taxonomy development (Bapna et al, 2004; Bensaou et al. 1995; Cannon et al. 1999)
- Taxonomy dimensions:
  - Interorganizational relationships
  - Reverse auction use
  - Transaction characteristics
- Cluster analysis. Cluster antecedents: buyer commitment/opportunism, buyer experience
- Cluster outcomes: Buyer satisfaction

# Clusters determinants, antecedents, outcomes



# Unit of Analysis

## Portfolio of Relationships (Ego Networks)

Egos: repeat buyers of IT services

Alters: suppliers IT services

Ties: IT projects (characteristics: number of projects, auction type, USD volume, project length)

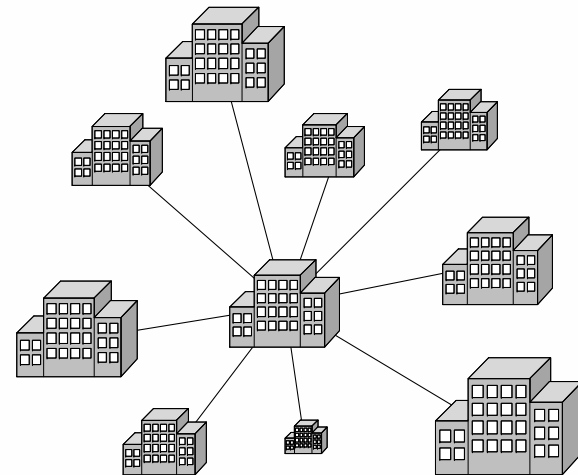
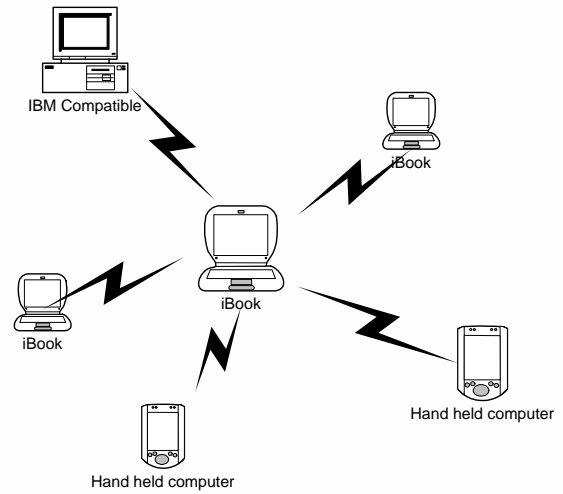
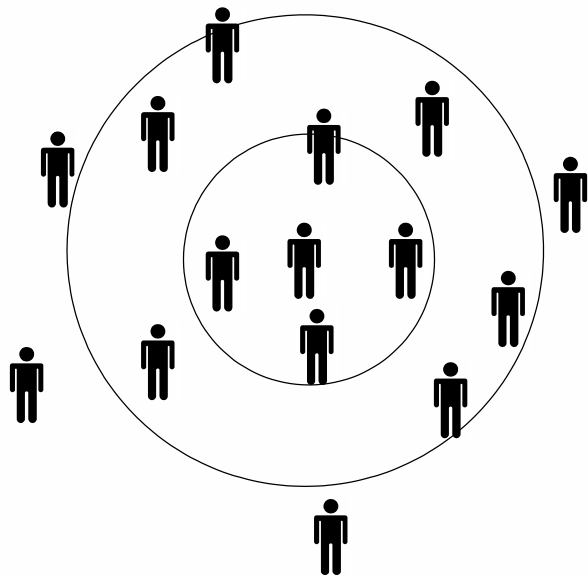
Research method: taxonomy uncovering, cluster analysis

Dimensions of cluster analysis:

- relationships characteristics (% projects per favorite supplier)
- project characteristics (average price, average length)
- exchange mechanism characteristics (% reverse auctions used)

# Examples

People, companies, computers...



# Empirical Research – a Leading Marketplace

- Over 100.000 clients served; transactions for over USD 90.000.000
- Typical IT projects: Software development, web design, database development
- 700 IT projects open for bidding at any moment
- Service providers: mostly from India and Eastern Europe
- Project allocation: reverse auctions (competitive) and bilateral negotiations (cooperative)

# Operationalization

- Interorganizational relationships
  - Share of projects per supplier with most projects, %
  - Duration of relationships with the supplier with most projects, days
- Reverse auction use
  - Share of reverse auctions, %
- Transaction characteristics
  - Portfolio size, USD
  - Average project value, USD
  - Average project length, days

# Data

- Data collected with web data extraction tools
- Sub-marketplaces – Website Development
- Raw data – 530 buyers who awarded and executed 20 to 300 projects each
- Resulting dataset
  - 104 ego networks
  - 2,167 projects awarded
  - USD 1,111,130 worth

# Cluster Analysis

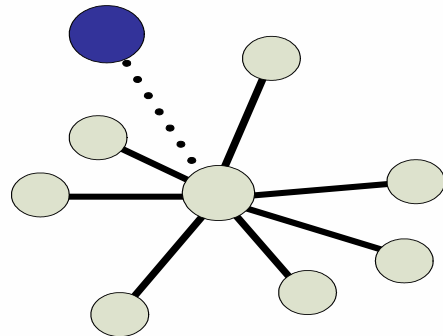
- K-means clustering
- Using dissimilarity ratio to find the optimal number of clusters (Bapna et al, 2004)
- Sub-optimal solution selected (4, instead of 5 or 9 clusters)
- Four cluster solution: 9, 39, 11 & 45 ego networks

# Four Cluster Solution

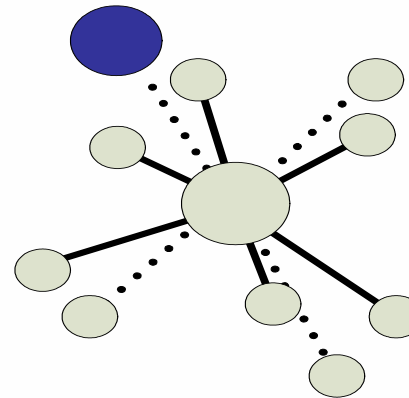
Table 5. 4-cluster solution					
	Transactional buyers	Relational buyers	Small diversifiers	Large diversifiers	ANOVA Z scores (Sig)
Share of projects per supplier with most projects, %	<b>32</b>	<b>78</b>	<b>63</b>	<b>56</b>	<b>.000</b>
Duration of relationships with the supplier with most projects	<b>241</b>	<b>575</b>	<b>873</b>	<b>806</b>	<b>.000</b>
Share of reverse auctions, %	<b>70</b>	<b>16</b>	<b>46</b>	<b>33</b>	<b>.000</b>
Portfolio size (USD)	<b>7,884</b>	<b>9,692</b>	<b>6,223</b>	<b>35,888</b>	<b>.000</b>
Average project value (USD)	<b>397</b>	<b>504</b>	<b>379</b>	<b>1,579</b>	<b>.000</b>
Average project length (days)	<b>48</b>	<b>30</b>	<b>105</b>	<b>66</b>	<b>.000</b>
N	<b>45</b>	<b>39</b>	<b>11</b>	<b>9</b>	

# Buying Patterns: Portfolios of Relationships

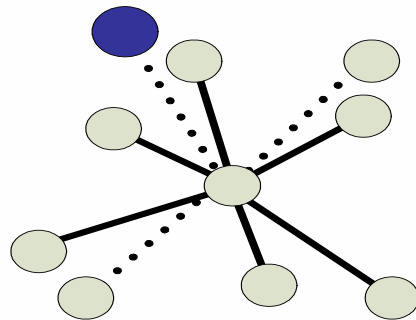
**Transactional Buyers**



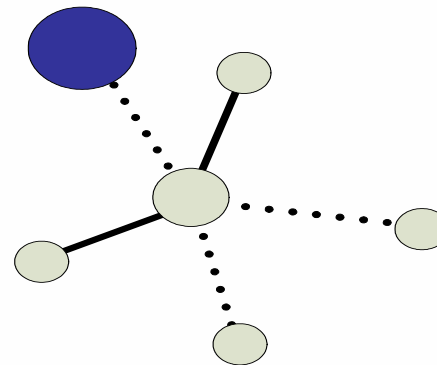
**Large Diversifiers**



**Small Diversifiers**



**Relational Buyers**



# Cluster Properties

Transactional buyers: mostly use reverse auctions; few projects with the preferred supplier; shortest duration of relationships with preferred supplier. Small project size + relatively long project duration.

Relational buyers: mostly use negotiations; 3/4 projects are done with the preferred supplier; long relationships with the preferred supplier.

Small & Large Diversifiers: mostly use negotiations; allocate over half projects to preferred supplier; possibly – several preferred suppliers; longest relationships with preferred suppliers.

# Cluster Antecedents and Outcomes

Table 6. Antecedents and outcomes of cluster variables

	Transactional buyers Mean (st. dev)	Relational buyers Mean (st. dev)	Small diversifiers Mean (st. dev)	Large diversifiers Mean (st. dev)	ANOVA Sig.
Number of awarded auctions/ Number of posted projects**	<b>0.7673</b> <b>(0.1531)</b>	<b>0.8718</b> <b>(0.1677)</b>	<b>0.7682</b> <b>(0.1342)</b>	<b>0.8589</b> <b>(0.2011)</b>	<b>0.019</b>
Number of awarded projects*	<b>73.62</b> <b>(47.18)</b>	<b>62.56</b> <b>(43.99)</b>	<b>48.00</b> <b>(21.09)</b>	<b>97.11</b> <b>(62.37)</b>	<b>0.078</b>
Overall spent USD***	<b>27,538</b> <b>(20,761)</b>	<b>34,719</b> <b>(41,333)</b>	<b>16,009</b> <b>(9,301)</b>	<b>87,670</b> <b>(32,447)</b>	<b>0.000</b>
Duration of presence at the marketplace**	<b>1,595</b> <b>(540)</b>	<b>1,330</b> <b>(444)</b>	<b>1,599</b> <b>(376)</b>	<b>1,683</b> <b>(317)</b>	<b>0.040</b>
Average satisfaction***	<b>4.7755</b> <b>(0.2917)</b>	<b>4.97</b> <b>(0.0561)</b>	<b>4.8572</b> <b>(0.2140)</b>	<b>4.8932</b> <b>(0.1406)</b>	<b>0.001</b>
Ratio: satisfaction with the most often used supplier/ average satisfaction***	<b>1.0468</b> <b>(0.0664)</b>	<b>1.0058</b> <b>(0.0121)</b>	<b>1.0311</b> <b>(0.0478)</b>	<b>1.0078</b> <b>(0.0222)</b>	<b>0.001</b>
N (listwise)	45	39	11	9	

# Cluster Antecedents and Outcomes

Buyer commitment/ opportunism. Transactional buyers are most opportunistic, i.e. post a lot of projects without awarding them.

Buyer experience. No drastic differences between Transactional and Relational buyers. Small Diversifiers are much less active than Large Diversifiers

Buyer satisfaction. The difference in the level of satisfaction is marginal but significant. Relational buyers have the highest level of satisfaction while Transactional buyers have the lowest satisfaction.

# Conclusions

- There are four types of repeat buyers at the online marketplace for IT services, with distinct characteristics and behavior.
- Relational buyers have the highest satisfaction with supplier performance, while Transactional buyers have the lowest satisfaction.
- Reverse auctions are associated with short-term orientation, while negotiations are associated with long-term orientation.
- Portfolios of relationships (ego networks) prove to be a useful perspective in analyzing buyer's attitude towards exchange.
- Online markets have to support long-term relationship orientation, otherwise they risk to lose clients.