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## Brokerage at Apex Electronics: Structural Holes and Good Ideas

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Dr Simone Santoni wrote this case to provide material for class discussion. The author does not intend to illustrate either effective or ineffective handling of a managerial situation. The author may have disguised certain names and other identifying information to protect confidentiality.

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### The Decision

In late 2001, *Apex Electronics*—a pseudonym for a large U.S. electronics company—was rethinking how ideas for new products or services surfaced in its supply chain. Lisa Grant, recently appointed Vice President of Supply Chain, had been handed two years of performance reviews, salary data, and a network map of 673 managers. Despite deep expertise, the organization felt slow to spot cross-unit opportunities.

A briefing on Lisa's desk summarized a striking pattern: *managers who connected colleagues across business units consistently produced better-rated ideas and progressed faster in the firm*. Yet most managers discussed work mainly inside dense local circles.

Lisa faced three paths:

- **Option A: Tighten the chain-of-command.** Double down on formal processes, clarify roles, and standardize reviews.

- **Option B: Pilot brokerage incentives.** Launch a six-month program that rewards managers who bridge groups and surface ideas spanning units.
- **Option C: Build an integrated network capability.** Institutionalize network analytics, training, and governance to manage brokerage at scale.

Which path would most reliably increase the flow of valuable ideas without creating noise or overburdening managers?

## Background: Structural Holes and Brokerage

Research on social capital distinguishes between cohesion within groups and brokerage across groups. When ties are denser within than between groups, the gaps are *structural holes*. People who bridge them enjoy a *vision advantage*: earlier and broader access to diverse information and practice, plus experience translating across communities.

In the study that informs this case, Ronald S. Burt (2004)<sup>1</sup> analyzed the networks and ideas of managers in an electronics firm's supply chain. He measured each manager's local network with *network constraint*: higher values mean one's contacts are tightly connected to one another (few bridges); lower values mean one's contacts are dispersed across groups (many bridges). Burt linked network positions to evaluations, promotions, compensation, and the quality of managers' best ideas.

## Apex Electronics: Organization Snapshot

Apex's supply chain was organized in multiple business units (BUs) plus headquarters. Communication across BUs often traveled upward and back down formal lines. Most managers maintained a small, cohesive circle of discussion partners. The network statistics in Exhibit 1 summarize the landscape.

Two patterns stood out:

1. **Opportunities to bridge.** Contacts across BUs were scarce; within-BU conversations were dense and frequent.
2. **Reward for bridging.** Managers with lower constraint (more bridges) were more likely to be evaluated as outstanding, promoted, and paid above peers, and to offer higher-value ideas.

## Data, Measures, and Signals

### *Measuring constraint*

As per Exhibit 2, constraint summarizes three features of a manager's immediate discussion network: size (number of contacts), density (how connected those contacts are to each other), and hierarchy (reliance on a single hub). Higher constraint indicates redundancy; lower constraint indicates brokerage potential.

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<sup>1</sup>Burt, Ronald S. "Structural holes and good ideas." American journal of sociology 110, no. 2 (2004): 349-399.

## ***Performance signals***

Apex used three managerial signals that mattered for careers and value creation:

- **Annual evaluations:** Poor, Good, Outstanding.
- **Advancement:** Promotion and/or above-average raise.
- **Idea merit:** Each manager wrote one change they believed would most improve supply-chain performance. Two senior leaders independently evaluated ideas on a 1–5 scale; ideas too local/vague were often dismissed.

## **What the Evidence Says**

Exhibits 3–4 distill the relationships Apex observed (adapted from Burt, 2004):

- Managers with low constraint (bridge builders) had roughly double the probability of an Outstanding evaluation and significantly higher odds of promotion/above-average raises than highly constrained peers.
- Idea value declined nonlinearly as constraint increased. The steepest drop occurred as networks became just locally redundant.
- Highly constrained managers were more likely to have their ideas dismissed and were less likely to submit an idea at all.

## **Three Options for Lisa Grant**

### ***Option A: Tighten the Chain-of-Command***

This option doubles down on Apex's existing organizational structure by strengthening formal processes and hierarchical controls. Rather than encouraging lateral connections across business units, it seeks efficiency through clarity: each manager knows their role, decisions follow established pathways, and cross-BU coordination happens through documented handoffs overseen by senior leadership. The approach assumes that ideas surface best when responsibilities are clear and compliance is strong. It minimizes disruption to current working patterns and requires minimal new investment. However, by reinforcing vertical communication and within-BU ties, it may inadvertently reduce the informal brokerage activity that the evidence suggests drives innovation. This option prioritizes operational predictability over network-driven idea generation.

#### *Actions:*

- Standardize decision rights
- Formalize cross-BU handoffs
- Expand compliance reviews

#### *Upside:*

- Clarity and lower coordination risk
- Fits current habits

#### *Downside:*

- Reinforces within-BU cohesion, not cross-BU brokerage
- Risks fewer novel ideas reaching decision makers

### ***Option B: Pilot Brokerage Incentives***

This option tests whether targeted incentives can shift managerial behavior toward cross-unit bridging without overwhelming the organization. The six-month pilot deliberately uses carrots rather than mandates: recognition, discretionary resources, and fast-track idea implementation for managers who span structural holes. By pairing light-touch network analytics with action-oriented sprints, Lisa can demonstrate value before committing to permanent infrastructure. The pilot design allows for rapid learning about what works at Apex—which BUs engage, whether ideas improve measurably, and how to distinguish genuine brokerage from performative behavior. If successful, the pilot provides concrete evidence for broader rollout; if not, the organization has contained the risk and learned valuable lessons about its culture and readiness for network-based interventions.

*Actions* (6-month pilot):

- Recognition and discretionary budget for managers who connect two or more BUs to address shared bottlenecks
- Light-touch network analytics to identify emergent bridges and measure constraint quarterly
- “Idea-to-action” sprints pairing brokers with process owners

*Upside:*

- Tests whether targeted incentives shift behavior and idea flow
- Bounded risk and cost

*Risks:*

- Gaming or performative bridging
- Uneven BU buy-in

### ***Option C: Integrated Network Capability***

This option treats brokerage as a strategic capability requiring dedicated resources, governance, and integration into core talent and performance systems. Rather than a one-time intervention, it builds a permanent Network Office responsible for ongoing analytics, manager training on how to bridge effectively, and processes that surface cross-BU opportunities before they become crises. By embedding network metrics alongside traditional KPIs in promotion decisions and portfolio reviews, Apex signals that boundary-spanning work is valued and measured. The approach positions the firm to continuously identify emerging structural holes and deploy brokers strategically. However, it demands sustained senior sponsorship, significant upfront investment in tools and people, and organizational willingness to adopt new ways of evaluating contribution—making it the highest-commitment, highest-potential-return option of the three.

*Actions* (12–18 months):

- Build a small *Network Office* to run analytics, training, and governance
- Embed brokerage signals into performance, talent moves, and portfolio reviews

*Upside:*

- Durable capability

- Early detection of cross-BU opportunities
- Institutional memory

*Risks:*

- Higher cost and change load
- Requires senior sponsorship

## Decision Point

It's year-end planning. Lisa must recommend which option to pursue. Apex's CFO favors Option A for predictability and cost. Two BU heads favor Option B to "see if this works here." The COO is intrigued by Option C but wants proof that network metrics add value beyond existing KPIs.

**What should Lisa propose, and in what sequence?**

## Discussion Questions

1. Where in Apex's structure are the highest-value structural holes? How would you prioritize bridging them?
2. What leading indicators would you track to ensure brokerage translates into better ideas and implemented improvements (not just more meetings)?
3. Design the core rules of a fair, low-bureaucracy brokerage incentive. How do you limit gaming?
4. When would you *not* want to encourage brokerage? Provide two concrete conditions.
5. If the pilot succeeds, what elements should be codified in an integrated capability versus left to local discretion?

## Companion Dataset

This case is accompanied by a synthetic dataset that replicates the key structural and statistical properties of the network and performance data analyzed in Burt (2004). The dataset enables hands-on exploration of the concepts and methods underlying this case.

### ***Dataset Structure***

*Relational data* (`edges.csv`):

- 1,218 undirected discussion ties among supply-chain managers
- Tie weights reflect relationship strength (0.50–1.00 scale)
- Dense within business units, sparse cross-BU ties (3% of total)
- 193 social isolates (29% of population)

*Attributive data* (`nodes.csv`, N=673):

- *Demographics*: Age, education, rank, role, business unit, location
- *Network position*: Degree, constraint, betweenness, clustering, mean path length
- *Performance*: Salary residual, evaluation (Poor/Good/Outstanding), promotion or above-average raise
- *Idea generation*: Survey response, idea expressed, idea discussed, idea value (1–5), idea dismissed

### **Key Variables**

**Network constraint** (Burt's formula): Measures redundancy in a manager's discussion network. High values ( $\rightarrow 100$ ) indicate dense, closed networks; low values ( $\rightarrow 0$ ) indicate networks spanning structural holes.

**Idea value** (1–5 scale): Two senior managers independently rated each proposed idea. The dataset captures the nonlinear relationship between low constraint and higher-rated ideas.

**Performance signals**: Evaluation, promotion/raise, and salary residuals (adjusted for rank, role, demographics). The data reflect reported patterns: managers with low constraint have roughly double the probability of an Outstanding evaluation.

### **Teaching Applications**

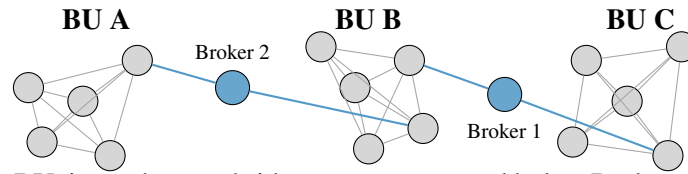
The dataset supports exercises in:

- *Network analysis*: Computing constraint, visualizing structural holes, identifying brokers
- *Regression modeling*: Testing the relationship between brokerage and outcomes, controlling for rank and demographics
- *Strategic decision-making*: Using network metrics to prioritize which managers to target for brokerage incentives
- *Organizational interventions*: Simulating the impact of rewiring ties or shifting managers across business units

*Note*: The dataset is synthetic and designed for teaching purposes. Values are calibrated to match the directional patterns and effect sizes reported in Burt (2004) but do not represent the original confidential data. See [data/burt\\_companion/](#) for files and documentation.

## Exhibits

### Exhibit 1: Small-World Structure and Brokerage



*Note:* Dense within-BU ties and sparse bridges create structural holes. Brokers (gold nodes) connect otherwise disconnected clusters.

### Exhibit 2: Burt's Constraint Measure

Ronald Burt's constraint measure quantifies the extent to which an individual's discussion network is redundant. It captures the lack of structural holes around an individual, indicating how embedded they are within a single, cohesive group. A high constraint value implies that an individual's contacts are well-connected to each other, leading to redundant information and limited access to diverse resources. Conversely, a low constraint value suggests that an individual's contacts are dispersed across different groups, positioning them as a "broker" with access to non-redundant information and opportunities.

The constraint for actor  $i$  ( $C_i$ ) is calculated as the sum of constraints imposed by each contact  $j$  in  $i$ 's network. The constraint  $c_{ij}$  that contact  $j$  imposes on actor  $i$  is defined as:

$$c_{ij} = (p_{ij} + \sum_{q \neq i, j} p_{iq} p_{qj})^2$$

where  $p_{ij}$  represents the proportion of  $i$ 's network time and energy invested in relationship with  $j$ . This proportion is typically calculated as  $p_{ij} = (z_{ij} + z_{ji}) / \sum_k (z_{ik} + z_{ki})$ , where  $z_{ij}$  is the raw strength of the tie between  $i$  and  $j$ . The term  $\sum_{q \neq i, j} p_{iq} p_{qj}$  captures the indirect constraint, reflecting the extent to which  $i$ 's other contacts ( $q$ ) are also connected to  $j$ . The total constraint on actor  $i$  is  $C_i = \sum_j c_{ij}$ . This measure effectively consolidates network density, hierarchy, and size into a single indicator of brokerage potential.

### Exhibit 2: Apex Supply-Chain Network Summary

Metric	Value	Interpretation
Managers in scope	673	Study population
Respondents with network data	455	Used for constraint and paths
Avg. discussion partners	5.0	Small local circles
Avg. partner interconnection	81%	High redundancy
Longest path across core	11 steps	Small-world reach via few brokers
Cross-BU direct links	3% of core ties	Scarce lateral bridges

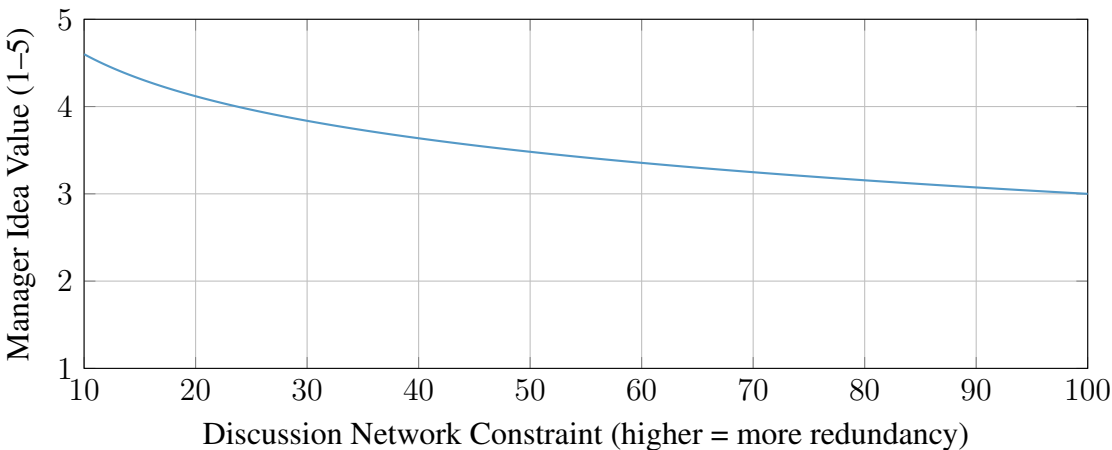
*Source:* Adapted from analyses reported in Burt (2004). Values simplified for teaching.

Exhibit 3: Returns to Brokerage (Illustrative)

Outcome	Low Constraint (Broker)	High Constraint (Redundant)
Probability Outstanding evaluation	0.32	0.16
Probability Promotion/Above-avg raise	0.68	0.28
Idea dismissed by both judges	Lower	Higher
Idea value (1–5 scale)	Higher	Lower

*Note:* Patterns reflect non-linear declines in performance and idea value as networks become more locally redundant (see Exhibit 4).

Exhibit 4: Idea Value vs. Network Constraint



*Illustration:* Idea value declines nonlinearly with constraint; the steepest losses occur as networks become just locally redundant.

Exhibit 5: Strategic Options Comparison

Criteria	Option A: Chain-of-Command	Option B: Pilot Incentives	Option C: Network Capability
Upfront cost	Low	Medium	High
Time to impact	Short	Medium (6 months)	Long (12–18 months)
Behavior change depth	Low	Medium	High
Risk of noise/gaming	Low	Medium	Medium
Differentiation	Low	Medium	High



***Exhibit 6: From Discussion to Action***

Mechanism	Design choice	Why it matters
Broker recognition	Public credit tied to cross-BU outcomes	Reinforces translation across groups
Idea-to-action sprints	6–8 weeks with BU co-owners	Converts ideas to implemented change
Lightweight analytics	Quarterly constraint and bridge metrics	Targets scarce attention where gaps are largest